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## THE INFLUENCE OF ÆTIOLOGICAL FACTORS UPON THE PROGNOSIS AND TREATMENT OF MENTAL DISORDERS.[1]

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EVEN amongst medical men there is a prevalent misconception as to the relationship between mental disorder and insanity: therefore perhaps one might be permitted to make the distinction clear. Insanity is purely a legal condition implying mental disorder of such a type as to make the individual a danger to himself or to others. A man is not insane by reason of the form of his mental disorder, whether psychoses, psychoneuroses or neuroses, but because of the bearing of his actual or potential conduct upon the community. Thus of two patients, each suffering from an equally severe attack of acute mania, one, a poor man, is certified as insane and sent to an institution, while his wealthy fellow is able to retire to his country house, where, surrounded by nurses and attendants, he can recover without danger to the community and without ever becoming "insane." Another example of the essentially legal nature of the term "insanity" is that of a patient who, though still mentally disordered, can be discharged from an institution as no longer insane, provided the authorities are convinced that there is no danger to the patient or to the community if this course is adopted. It will thus be seen that the problems of alienation which confront the psychiatrist in his treatment of mental disorder are legal, though necessary, intrusions upon his scientific practice of psychiatry.

In this paper I shall attempt to discuss the mentally disordered as they present themselves to the doctor in private houses, at his surgery or in the wards of a general hospital. Emphasis will be laid upon such ætiological factors as influence the prognosis and the treatment of these patients. The doctor must decide whether it is wise to certify the patient as insane, whether treatment in a "border line" hospital is indicated, whether to advise surgical procedures, or whether to order a prolonged holiday or sea trip. It is only by taking trouble to elicit relevant

[1] Read at the Annual Meeting of the Western Australian Branch of the British Medical Association on March 22, 1931.

ætiological factors and correlating them with the symptoms that satisfactory decisions can be reached. No useful purpose is served by sending a demented epileptic or an imbecile to an institution for borderline cases, even when the disorder of conduct manifested may be slight. At the same time patients with acute mania, though violent and troublesome, may, if the other factors are favourable, be successfully treated in such hospitals as "Heathcote." Just as the pædiatrician must treat the mother along with the child, so the psychiatrist has to consider the patient's family, friends and dependants as well as the patient himself. It is easy for an inconsiderate physician to advise a prolonged sea trip which may avail the patient nothing, but which may possibly break up a family and leave the relatives penniless.

In some cases it is impossible for the doctor to make any investigations, the urgency of the symptoms demanding immediate certification. Mostly, however, opportunity offers for a fairly thorough examination, both physical and mental. Sometimes also it is possible to obtain a full and informative history from relatives. For one called upon to deal with such cases three guiding principles may be enunciated: (i) The mental disorder may be attributable to some definite physical cause such as syphilis, gross brain disease *et cetera*. (ii) The mental disorder may be in part and to a varying degree attributable to some organic disease. (iii) The mental disorder may be the result of hereditary, social and environmental factors.

There is reason to believe that a considerable proportion of the mentally disordered belong to groups (i) and (ii). That is to say, that organic lesions are wholly or partly responsible for a considerable proportion of mental disorders. Of the last fifty consecutive autopsies carried out upon the insane at Claremont, twenty-two (44%) revealed organic lesions which could certainly account for the mental symptoms, while twenty (40%) revealed conditions which must have had a marked influence upon the patient's mental condition. It is hoped that a detailed study of these and other autopsies will be prepared by our medical team, Dr. Bentley, Dr. Thompson, Dr. Bury, Dr. Anderson and myself, probably for submission to Congress. The exact onset of the mental disorder, the symptoms and course will be correlated where possible with the conditions found *post mortem*. Time is far too short to permit one to consider this interesting subject tonight, nevertheless, it may be pointed out that there are demonstrable organic factors at fault in a much higher proportion of mental disorders than is generally supposed.

### The First Group.

Bearing this fact in mind, let us consider some of the organic conditions which are likely to be important ætiological factors in the causation of mental disorders. First, though not the most frequent factor, let us consider syphilis, which is responsible for between 6% and 9% of the psychoses. Mostly syphilis manifests itself as general paralysis of the insane, but even in other forms it is not uncommonly responsible for mental disorders. At any rate, it is useful to remember that syphilis is a factor which the psychiatrist must detect or eliminate in almost all cases of mental disturbance, no matter how unlike the text-book picture of general paralysis of the insane the symptoms may be. So important is it, that at many clinics, notably at Vienna, it is the routine to examine the cerebro-spinal fluid of all syphilitics under treatment for that condition. For those who show persistently positive Wassermann reactions in the cerebro-spinal fluid, even though no mental symptoms are present, a course of malaria is given. This seems to be a distinctly rational procedure, for malarial treatment for syphilis of the cerebral nervous system is long past the experimental stage.

Many mental disorders owe their origin to gross brain lesions. The term "gross brain lesion" is often liberally interpreted by psychiatrists to include such brain damage as is caused by *encephalitis lethargica*, progressive lenticular degeneration, disseminated sclerosis, Huntingdon's chorea, *et cetera*, as well as the more obvious tumour, traumatic and other softenings. This subject, from the point of view of symptomatology, has been dealt with in a previous communication (it was the subject for discussion last year). It is probable that a number of these cases escape detection, partly because of the overclouding effect of mental symptoms which make detailed physical examination difficult or even impossible, and partly because physical signs may not be apparent until the late stages of the disease when the patient has become a "chronic" and passed from the close medical scrutiny accorded the new patients. This is no theoretical abstraction, for it is perfectly true that mental symptoms may precede by many months the appearance of the first physical signs of cerebral tumour. Some unfortunate sufferers from gross brain lesions are regarded as neurasthenics, malingerers and even criminals, until in the last stages of their disease or at their *post mortem* examinations the true case is revealed. A possible lesson to be drawn is that no abnormal neurological sign, even when only slightly abnormal, is insignificant in the mentally deranged. In such a case, even when no definite diagnosis can be made, careful observation is indicated. At Claremont we are all impressed with this standpoint and efforts are being made to devise tests of tracing and other types which may be in some ways more sensitive than those at present in general use. This certainly appears to be a likely field for research.

Last week I saw a patient to illustrate this point. Mr. X., aged thirty-seven years, had a sound heredity. His education was good. He served in a State Department until the commencement of the war. During the war he was blown up three times in one day; he had a severe attack of jaundice and developed, at the end of his service, bilateral otorrhœa. He married and held a responsible position in England for three years before returning to Australia. After six months in the employ of a business firm he had a breakdown described thus. He received an order on the telephone, but on replacing the receiver he had no recollection of the customer's name or of the nature of the order. He was given sick leave. About three years later he was taken to the Perth Hospital, where, he states, he remained unconscious for some time. Dr. Moxon told him that he had had a slight "stroke" and exhibited him at a medical meeting. He then had ptosis (which still persists), diplopia and parasthesiæ. His cerebro-spinal fluid was examined and found to be normal. After

recovery he joined another firm which he served for two years. At the end of this time (eight months ago) he was convicted of stealing from the firm and fined £25. He cannot explain his actions; he was in no financial difficulties. Later he commenced hawking sandwiches round city offices until last month when he was convicted of stealing books, a fine of £10 being imposed. As he was rather tremulous and complained of defective memory and loss of sleep, his friends brought him to "Heathcote."

Commenting on the patient, one of his friends states that: "For the last two years he has been getting more and more irresponsible and has become a remarkable liar. He has let his best friends down. He secured £5 from one as a contribution to the funeral expenses of a non-existent son. His wife had complained of her husband's changed character before the thefts were committed. Though previously an adept at figures, he is now hopeless and his accounts are quite childish. He has never been alcoholic in his habits."

It is beyond the scope of the paper to discuss this case from the neurological point of view. Suffice it to say that he presents some abnormal physical signs, that the blood does not react to the Wassermann test, and that further investigations are being carried out.

While gross brain lesions are in our mind we might consider subacute combined degeneration and Addison's (or pernicious) anæmia as causes of mental disorder. It is well known that the signs of subacute combined degeneration may precede the onset of Addisonian blood changes by some months. It is less well known that mental symptoms may apparently precede both of these. To discuss the rationale would almost certainly raise very controversial matters.

Uræmia is well known as a cause of mental disturbance, and in most mental hospitals several patients with uræmic psychoses are admitted and die each year. Over and above these cases there are many of the latent uræmia type, the chronic nephritic, depressed, restless and demented. It is possible that impairment of renal function is more prone to cause mental disturbance than is commonly realized. Chronic pyelitis or pyelocystitis, so common amongst parous females, while not a cause of mental disorder, seems to provide an excellent nidus for the growth of any mental abnormality. The depression, debility and general malaise associated with this chronic or subacute condition should not be overlooked, as intensive treatment may produce dramatic cures. It is difficult to dissociate the arterio-renal syndrome (with its thickened meninges and vascular changes) when it occurs in comparatively young and previously active men from many presenile forms of dementia of melancholic or involutional type.

Factors which can contribute materially to the occurrence and course of mental disorder are malignant growths, diabetes, aortic disease, cardiac failure, associated, for example, with auricular fibrillation, pulmonary tuberculosis, hyperthyreoidism and other endocrine disorders. Sometimes the detection and control of these conditions leads to considerable mental improvement. These diseases are not placed in any special order and the list is by no means exhaustive: it is intended only to emphasize the diversity of the physical conditions which can be important ætiological factors in the causation of mental disorders. We must all have seen those cases in which confusion, depression and restlessness are the predominant mental symptoms, while physically the patient appears to be ill. There may be no pyrexia and no apparent focus of infection or localizing sign, yet we have regarded these conditions as toxic in origin. Much has been written of the beneficial effects of dental extractions amongst the insane in America and on *a priori* grounds this is what one would expect. Unfortunately, however, both in England and in Australia the results of dental treatment have been disappointing. Personally, I can say that I have seen very few patients improve as a result of the removal of sources of oral sepsis. On the contrary, I have seen a few patients whose mild mental unbalance appears to have been precipitated into an acute psychosis as a result of extensive extractions. Presumably these patients, previously in a delicate balance with their environment, are suddenly faced with the stress of the dental operation, with the post-operative pain and last, but not least, with the trying problem of adapting themselves to an edentulous condition. These added sudden stresses may prove sufficient to break down the mental resistance and to do more than counterbalance the good resulting from the removal of septic foci. Whatever the explanation may be, it is well to realize that as a general rule extensive and radical dental manœuvres are ill-advised unless the patient is protected (mentally "splinted") by being placed in a suitable hospital. Similarly it may be pointed out that when other operations for the removal of septic foci are contemplated, the patient should not be regarded only from the point of view of the operating surgeon, but that exceptional attention should be given to minimizing pre-operative and post-operative mental stresses. In no branch of medicine is cooperation between the various specialists so important as it is in dealing with these toxic mental disturbances. Unfortunately, owing to economic and other factors, the desired cooperation is rarely obtained, many of these patients with toxic psychosis being allowed to deteriorate and to join permanently the ranks of the insane.

### The Second Group.

As we pass from the primarily organic to the primarily psychical we may consider mental disorders associated with the climacteric. In those of sound mental stock and in good physical health, the climacteric may be weathered with little or no discomfort. But when the mental stock is slightly unstable and when the general physical health is poor, mental symptoms may become pronounced. It is of very material importance, when dealing with these patients, to detect any debilitating physical condition such as pyelitis, hæmorrhoids, *et cetera*, for both the prognosis and the treatment of the mental disorder are dependent upon these factors.

### The Third Group.

Before considering the third group, that is, the mental disorders resulting from hereditary, social and environmental factors, mention should be made of the epilepsies. Epilepsy, no longer regarded as a single clinical entity, is a common cause of mental disorder, and although some of the epilepsies are clearly not hereditary, the common so-called

idiopathic epilepsy is definitely dependent upon hereditary factors. Kinnier Wilson and other neurologists are inclined to minimize the importance of the hereditary factors in epilepsy. In quoting recent figures from an American hospital, Kinnier Wilson[1] states that of 161 children born of 144 epileptic mothers, only three were epileptic. He quotes these figures to show that in epilepsy heredity is overrated. Let us consider the figures in greater detail. Of the 161 children, seventy-eight died under one year, five were imbecile, three criminal, four psychopathic, two psychotic and three epileptic. That is to say, that only sixty-six of the 161 (about 40%) of the children were apparently normal. How many of the sixty-six would be normal at the age of thirty? No more convincing figures could be produced to illustrate the importance of the hereditary factor in idiopathic epilepsy.

In just the same way that certain neurologists have attempted to underrate the importance of heredity in epilepsy so some psychiatrists have attempted to minimize the influence of the same factors in mental disorders. I have heard a leading psychiatrist say that paying attention to heredity involves the adoption of a pessimistic attitude towards mental disorders. On the other hand, to disregard the importance of heredity is surely to adopt an ostrich-like attitude with the head well buried in the sand.

Anyone inclined to doubt the importance of heredity in the causation of mental disorder would have his views profoundly altered if, for two or three afternoons, he interviewed the patient's relatives at a mental hospital.

At first sight it may appear that I am labouring a purely theoretical point, but that is not so, because both the prognosis and the treatment of any patient are markedly influenced by the family history. Thus, of two patients presenting similar symptoms of mild mental disorder, the history of insane relatives in one might lead to a bad prognosis while a good prognosis might be indicated for the other.

One aspect of this question has rather a theoretical bearing, that is the eugenic aspect, involving as it does the problem of the sterilization of the unfit. Mostly discussed by those least competent to express opinions—women's religious organizations *et cetera*—the subject is almost beyond the range of a British Medical Association meeting. Suffice it to warn the unwary medical man from arriving at hurried and ill-considered opinions on this vexed subject.

When it appears that a case of mental disorder is entirely due to other than physical causes, it is necessary to estimate, on the one hand, the patient's mental stock, and, on the other, the severity of the stresses to which he has been subjected. It is as a result of an estimate of these factors that one can give a prognosis and direct treatment. Some of the stresses are almost purely sociological and are therefore, in favourable circumstances, open to adjustment, while others commonly encountered are repressed complexes involving the principal instincts—self-preservation, propagation and the herd instinct. In the good old days of the family practitioner when the doctor had probably ushered the patient into the world, bribed him with lollies, chastised him for stealing fruit from the orchard and later observed him in the whirl of local social life, no elaborate examination was necessary: the doctor could read his patient like the *Daily Sketch*. Nowadays such a long standing relation between doctor and patient rarely obtains. Nevertheless, it is usually possible for the doctor to acquire the patient's confidence and then by common-sense methods to elicit some important repression, such as the repression of sex owing to the dictates of herd. Personally, I am not convinced that much more useful information is obtained by psychoanalysis, dream interpretation *et cetera* than by more conservative methods. This does not imply that no special skill is required of the psychiatrist. The skilled pædiatrician, in a momentary glance at a child's throat, is able to observe all the important points, whilst one less expert, though using the same technique, derives little information from a troublesome and prolonged examination. Similarly, a medical man who is accustomed to dealing with the mentally disordered, can ascertain abnormalities which another, though adopting the same methods, would miss. Here is an example of dream interpretation quoted from Dr. E. Graham Howe.[2]

> The patient, a woman of forty-seven, wore horn-rimmed spectacles, a severe expression, a masculine type of dress, and was the head mistress of a large girls' school. She had entered and passed with honours every examination within her power, and, judged from one standpoint, her life could be measured as successful. As a child her parents had told her that they were bitterly disappointed that she was not a boy, and her whole life had been directed towards making up for this unfortunate defect on her part. Up to a point she had succeeded and she had been able to contribute from very small beginnings to her parents' comfort in their old age. But she was subject to extreme fits of depression and she was afraid of going out for walks by herself in lonely places, or if it was dark, in case she should be attacked by a man. It was for this depression and anxiety that she came for treatment.

I do not suppose that there is one here who has not diagnosed the condition and formulated, as far as possible, the lines of treatment. Did not Gilbert describe such a one in Iolanthe's Fairy Queen? But let us probe her dream.

> I was on top of a high hill with some other people and I was told that we had to go down and cross the river that lay between the base of the hill and some rugged barren ground on the other side. I did not wish to go and wanted to stay on the hill. I told the others if they went there would be an awful disaster, but in spite of my warning they went down the hill and commenced to cross the river. They had only got halfway across when suddenly there was a terrible storm with wind and rain and they seemed to be washed away. Then I found myself going down the hill and I knew that I also had to cross the river, but somehow I did not feel afraid because in my hand I held a talisman. It was circular like a little box, and I seemed to touch it with my forefinger and then touch my face. With this talisman I was able to cross the river without danger.

Dr. Howe sums the dream up thus:

> She found some little difficulty in evaluating her talisman until she was asked to make the gesture that she had to make in the dream. There was no doubt about it and she had discovered its meaning for herself. The talisman was a powder box and puff, symbols of femininity which she had always affected to despise.

It is my opinion that the psychiatrist, using only such skill as he is accustomed to use in his dealings

with patients, can detect the essential fault in these cases. He can then suggest appropriate sublimation, physical transference or such other mechanism for the solution of the conflict as he thinks fit. By psychoanalysis and the bringing into consciousness of a mass of sex conceptions, which properly belong to the limbo of the unconscious, the individual, though possibly rid of his symptoms, is doomed to go through life viewing every lamp-post as a phallic symbol and thinking principally between the knees and the umbilicus.

I must ask pardon for this outburst because our State appears to be singularly free from this obnoxious form of medical practice. There appears to be a definite swing away from the purely psychical methods in favour of an increased cooperation between psychiatry and the other branches of medical science. This process is indicated by the helpful articles which are contributed from time to time by Dr. W. S. Dawson and Dr. R. S. Ellery.

In conclusion, I should like to make a general statement, for which, however, no statistical evidence can be offered. It is that as a result of advances in our knowledge of psychiatry, the prospects of any individual patient with mental disorder are now appreciably better than they were ten years ago. Moreover, the extent of the improvement is at least equal to that which has been obtained in the other branches of medicine and surgery.

#### References.

(1) Kinnier Wilson: "Some Aspects of the Problems of the Epilepsies," *The British Medical Journal*, October 26, 1929, page 745.
(2) E. Graham Howe: "Motives and Mechanisms of the Mind," *The Lancet*, January 17, 1931, page 147.

## SURGICAL TREATMENT OF PROSTATIC OBSTRUCTION.[1]

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THE surgery of prostatic obstruction falls into three main headings, if I exclude, of course, the obstructions due to cord lesions. These three headings are median bar, adenoma and malignant disease, and these are what I shall concern myself with tonight.

In all cases of prostatic obstruction a discussion revolves, first, around the preliminary preparation for operation and, secondly, around the operation for the removal of the obstruction itself. I believe the preliminary preparation to be the more important, for if all things are favourable for operation, the operation itself is a comparatively simple matter.

Verne Hunt, in an article discussing poor results of prostatectomy at the Mayo Clinic, claims that in the main they were due to pyelonephritis.

[1] Read at a meeting of the Queensland Branch of the British Medical Association on May 10, 1931.

All surgeons admit that prostatectomy should not be attempted till the renal function is adequate, so that one can readily see how important this aspect of the discussion must be. I will consequently first devote myself to the actual surgical procedure for the different types of obstruction and then, as I consider it the more important, enlarge upon the preliminary preparation for such.

### Median Bar Obstruction.

The symptoms of median bar obstruction are practically identical with those due to adenoma. It occurs, however, more commonly in younger people, forty to sixty years of age, though I have had one case in the eighties. Rectal examination gives no indication of enlargement of the prostate, and cystoscopy shows no lateral lobes, but a very definite inflammatory bar, or glandular bar, not infrequently complicated by the presence of a renal calculus. In my experience the presence of lateral lobes, as seen by the cystoscope, is an absolute indication that a punch operation should not be done, but that enucleation should be carried out.

There are many types of punch operation practised. I have done three methods myself, namely, the ordinary Young's punch, the Young punch followed by diathermy to the bleeding surface, and, thirdly, the fulguration punch, as invented by Walker, of London.

I have discarded the first two methods and now stick to the third, in spite of the published criticisms against it. In my mind, with the Young's punch removal of adequate tissue is difficult and bleeding is very often troublesome. Controlling the bleeding with diathermy is difficult, but satisfactory as a rule, but again the removal of tissue is often inadequate.

The removal of tissue by the fulguration punch is much easier, as the obstruction shrivels when fulgurated and a certain amount of sloughing goes on afterwards. Very little bleeding takes place, though a little occurs when the slough separates, generally about ten to fourteen days. The relief of obstruction is excellent and has been permanent in every case save one, and in this instance the patient developed malignant changes after eighteen months. The objection is on the score of inflammatory reaction, and this can be very severe. At first I was inclined to think this risk was overrated, but then I have had a few cases that show me it is a very real one, and that certain precautions must be closely observed.

In one instance, the worst, there was a history of acute prostatitis six months previously, though at the time of operation there were no acute local signs. The patient was all right for twenty-four hours, but developed retention. I passed a soft catheter at once, but in the next twenty-four hours he developed rigors, which got worse, so after another twenty-four hours I put a suprapubic drainage tube into his bladder. He smelt like a case of gangrene, but responded quite quickly, and eventually made a very fair recovery.

One must avoid burning too severely, as this certainly increases the inflammatory reaction, and

to achieve this one is guided partly by experience, partly by the feel of heat in one's finger which is in the rectum, and mainly by one's vision through the telescope of the instrument. If severe reaction does take place, put in a suprapubic catheter without delay.

### Obstruction Due to Adenoma.

Obstruction due to adenoma is diagnosed by its symptoms, the age of the patient, most commonly sixty years upwards, and the enlargement as felt *per rectum* and confirmed, if necessary, by cystoscopy. The operation for removal that is almost inevitably carried out is the suprapubic enucleation. When the kidney function is considered adequate, I proceed as follows: If a suprapubic catheter has been used I simply enlarge the wound sufficiently to introduce two fingers and enucleate the gland as quickly as possible, using a finger in the rectum if I think it will help me. I then pass a catheter through the urethra and fasten it to a glass drainage tube which I place in the suprapubic wound. "Hæmostatic serum" is given and no attempt is made to check the bleeding, except by the insertion of a swab in the prostatic cavity while the catheter and tube are being got ready.

In favourable cases the operation takes only a few minutes and it is wonderful how little shock is then met with, even in frail old men.

The glass tube is taken out in four days and the catheter in from seven to eleven days, according to the inflammation present. The bladder is washed out suprapubically as long as there is room to pass a small catheter, and if the wound is not healed in three weeks cystoscopy is done. This will show any obstruction present, such as tags, nodules or ledge, and anything seen can be destroyed by fulguration, after which healing as a rule occurs quickly. In this operation and in the open operation to be described, each vas is tied as a routine. This most efficiently prevents any orchitis taking place—any infection that may occur will not extend down below the seat of ligature.

When the kidney function has become adequately restored by means of a catheter tied in the urethra, an open operation is the operation of choice. Thomson Walker first devised the operation, and his type of operation, with some modification or other, is carried out nowadays by most urologists. Dr. Harry Harris has gone still further and is now doing an open operation, with repair of the prostatic urethra and complete closure of the bladder. I personally attempt an operation between these two methods. Through a transverse skin incision which need not be very long, except in fat people, the fascia is divided vertically and the bladder quickly opened as near the fundus as possible. The prostate is then shelled out digitally; a finger in the rectum is seldom necessary. A swab is then packed into the prostatic pouch and the patient put up into the Trendelenburg position. A bladder retractor, such as that of Thomson Walker, is then inserted, and a very fair view can be obtained of the prostatic pouch by means of an ordinary Asciatic overhead light. Any tags or nodules of prostate can then be removed and any artery spurting can generally be seen and picked up. A good sucker is of great help, if available. If one views the prostatic pouch from above and considers the bladder opening as a triangle, the base of which is towards the ureters and the apex towards the symphysis, sutures should be put in at each basal angle and a continuous one along the base is often of great help. Too much time should not be wasted on oozing from the walls of the pouch, but a large catheter should be passed and fastened to a piece of tube on the abdominal wall, just so that the eye of the catheter should be in the bladder; an extra eye should be made in the catheter so as to drain the prostatic pouch from its most dependent part. The bladder is then sewn firmly round a large self-retaining catheter, which is brought out through a stab wound just above the transverse skin incision; a small piece of rubber glove is used to drain the prevesical space for thirty-six hours. Very weak antiseptic is used to irrigate through the catheter every hour for the first twenty-four hours to diminish the risk of clotting. The suprapubic tube is taken out in four days, the urethral catheter in seven to eleven, according to the irritation caused. Urine is usually passed easily after eleven days with this type of operation.

### Obstruction Due to Malignant Disease.

Obstruction due to malignant disease is generally one of two types: first, the ordinary adenoma that has undergone malignant changes, and secondly a hard, irregular, slightly enlarged prostate, whose every feature suggests malignancy and which defies any attempt at enucleation.

The former type is often discovered only after removal, either by its recurrence or by the microscope, and it is then very difficult to know what decision is the best to make about it. If suspected during the operation by the impossibility to shell part of the gland after having enucleated most of it, I have several times severed the adherent part by means of a fulguration cautery and this, too, with good results. This can be done quickly only during a one-stage open operation. The hard nodular type can be attacked only by the use of radium, and I am in no position to give any lasting results with it. Three patients with severe obstruction of this type that Dr. Clarke and I have treated with radium have all healed up suprapubically and have urinated, but they have been too recent to be sure of any permanency in the result.

### The Preparation of the Patient.

Whatever type of operation is performed, the principles concerning the preparation of the patient for operation are exactly the same. In fact, the whole thing becomes a matter of renal function and infection.

Renal function and infection make the operation necessary, determine what type of preliminary treatment shall be carried out, decide on the type

of operation, and are responsible for the good, bad or indifferent results of the operation.

When confronted by a case of prostatic obstruction, one's procedure is generally along the following lines.

The residual urine is estimated and the renal function is observed.

Many tests are spoken of, but most surgeons learn to depend on one or two and stick to them. The indigo-carmine test is the one I value most as an estimate of surgical risk, but I invariably study the patient's general condition and have the blood or salivary urea and urea concentration tests done. In young people with obstruction of the median bar type, if the renal tests are satisfactory and there is little or no residual urine, the fulguration punch operation can be done with ordinary preoperative surgical treatment. If the results of the tests are bad and in all adenomatous or malignant cases a catheter is tied in and the bladder drained. It is almost always possible to pass a modern firm catheter with a Coudé tip; if there is over about 180 cubic centimetres (six ounces) of residual urine it is advisable to let it out gradually—about 120 cubic centimetres (four ounces) every two hours, at the same time giving the patient diuretic treatment. If a catheter cannot be passed, the bladder should be tapped suprapubically with a long, fine spinal needle and the needle then withdrawn. This can be repeated if necessary.

If the patient obviously needs a two-stage operation, a suprapubic tube should be inserted after a few days, under a local anæsthetic for preference; otherwise change the catheter every two or three days, irrigating three or four times daily with a weak antiseptic solution, such as one in 4,000 mercuric oxycyanide solution. After ten to fourteen days, if the results of renal tests are adequate and things are satisfactory, proceed to the open operation. If the results of tests are not adequate, leave another week and repeat. If inadequate then, some surgeons go on even longer, but Thomson Walker says if the results of tests are not adequate in three weeks, suprapubic drainage should be carried out.

Now tying a catheter in continuously is not a trivial thing, especially in a man with prostatic trouble, and I think I had better relate some of my horrible experiences in this line.

During the past twelve months I had a patient with apparently uninfected urine, aged between sixty and seventy years. He had had a gastro-jejunostomy operation done on him and his urine was only dribbling, due to an adenoma. I tied a catheter in, and on the fourth day he had a violent hæmorrhage and collapsed. He staggered round, but about the twelfth day he had a rise in temperature with rigors. I put in a tube suprapubically under local anæsthesia and he certainly rallied and left hospital to convalesce, but eventually developed pneumonia and died.

Now if I had put a tube in his bladder straight off, he might have had his hæmorrhage, but I do not believe he would have died.

Again, just the other day I had a man in the sixties with complete obstruction. I tied a catheter in, and after three weeks' draining the results of his renal tests were good. I was a little uneasy about him, as three days previous to my making the tests he had an evening rise of temperature up to 37·8° C. (100° F.). However, his chart had since been normal, his tongue was moist and reasonably clean, he felt well and was eating his food. I decided to do an open operation. Everything went all right, and he was well during the night. His urine was blood stained only, but he had a severe rigor next morning and died within twenty-four hours in spite of everything we could do.

A definite percentage of patients treated with an indwelling catheter fail to develop adequate renal function and have to have a suprapubic drain inserted; a definite number develop infection and also have to be drained suprapubically; the majority, however, tolerate the catheter and develop their adequate renal function in the first few weeks and are then excellent cases for operation. All surgeons admit, however, that the suprapubic drainage is the more efficient method of restoring renal function, and a few surgeons claim that it should be used invariably. Quite a number keep their patients draining suprapubically after operation and do not like the wound to close up under three weeks. That suprapubic drainage is miraculous in recovering men apparently hopeless is illustrated by such a case as the following.

A man, aged seventy, had almost complete retention of over three months' standing, severe pyuria and frequency and probably a distension overflow for most of that time. His general condition was bad, his tongue was dry and coated, he was very thirsty, he had no appetite and his mentality was very dulled. A suprapubic drainage tube was inserted under local anæsthesia and routine treatment was instituted. While lying in bed he developed a low grade bilateral pneumonia with blood-stained sputum *et cetera*. He made a slow recovery, eventually left hospital with his drainage tube still in. About six months later the results of his renal tests were good enough to justify enucleation. He took his anæsthetic well (ether by the open method with morphine and atropine), the gland was shelled out in a few minutes and he made an uneventful recovery, leaving hospital in about four weeks. His suprapubic wound leaked a little about a month later, and there was a developing ventral hernia to be seen, so I gave him another anæsthetic, carried out cystoscopy, destroyed a ledge that was present, cut out his suprapubic scar and sewed it up firmly. The wound healed up rapidly and has now a perfect result.

This certainly sounds like a lot of "messing about," but the end result certainly justifies the means, as the old man is well and happy. It is over two years since his operation and he looks good for another ten at least.

From an operative point of view this case represents the type in which the most operative interference had to be done, but the result is a very good physiological one. Other cases could be mentioned showing good functional results, but they would be very similar to the one mentioned. I should, however, like to allude to one case with especial reference to the effect on his blood pressure.

In this instance the patient complained of a general deterioration in his general health and a great difficulty in emptying his bladder. The urine simply dripped out and there was a tumour above the pubis. His systolic blood pressure was over 220 millimetres of mercury and his diastolic pressure 110 millimetres. Suprapubic drainage was carried out again and after ten weeks the gland was enucleated without any trouble. The wound healed up and the patient passed urine in three weeks, the systolic

blood pressure being then down to 180 and the diastolic to 100 millimetres of mercury. After a couple of days he had a rise in temperature and had a flare-up in each cord down to the site of ligature.

The suprapubic tube was put back, everything settled down and the bladder was drained for another three weeks. His systolic blood pressure was then 150 and his diastolic pressure 90 millimetres of mercury, and the wound was allowed to heal. His case is a recent one, so I cannot give any follow-up history, but he looks and feels well, and the drop in his blood pressure is very suggestive.

In conclusion one must admit the open operation of one or other type should be the aim in every case possible, but I personally believe that all men over eighty would have a safer operation and a better expectation of life if suprapubic drainage were instituted first. So also would all patients with acute inflammation, either renal or prostatic; in other cases the decision must be made according to the indications.

## TOXICITY OF MELIA AZEDARACH, "WHITE CEDAR."

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SINCE my return to Australia an article by Dr. John MacPherson, of Sydney, in your issue of September 13, 1930, has come under my notice, and as the article in question leaves the toxicity of of the drupes (berries) of the above tree somewhat in doubt, the following information is tendered.

During the years 1891–1898 several articles appeared in the *Agricultural Gazette* with reference to the supposed toxicity of these berries for poultry and pigs.

In 1920 some pigs died at Forbes, and as the stomachs of these animals contained berries of the above the tree came definitely under suspicion, and Mr. Whitehouse, Government Veterinary Surgeon, undertook a test at Hawkesbury Agricultural College. He found that pigs would not take the berries voluntarily, but that a mixture of crushed berries and swill was readily eaten. Symptoms of illness developed in this pig a few hours later and the animal died six hours after feeding.

The above experiment was not published, and the only references seen in literature are: (*a*) Pammel ("Manual of Poisonous Plants," 1911), wherein it is stated that the berries are said to be poisonous and that they contain mangrovin; (*b*) White (*Queensland Agricultural Journal*, 1920, page 146), wherein it is stated that the berries are poisonous to pigs; (*c*) Herbert ("Poison Plants of Western Australia"), who states that they are poisonous to pigs but that birds are immune.

To confirm Whitehouse's work, some tests were undertaken at this Station in 1927, when their toxicity for pigs was confirmed. Sheep receiving as much as one and a half pounds of pulped berries were not poisoned, though slight symptoms of illness were manifested.

More recently it was found that as little as 4·8 ounces of ripe berries were toxic for a pig of forty-four pounds weight. Our previous test was with green berries, half a pound proving toxic.

A recent supply of "berries" was examined by Miss Holdsworth, of Mr. H. Finnemore's laboratory (Pharmacy Department of the University of Sydney), for the late Poison Plants Committee of the Council for Scientific and Industrial Research, and as a result alkaloids were found to be present.

Investigations have recently been conducted by Steyn at the Onderstepoort Veterinary Laboratories in South Africa, and these show that the most toxic part of the tree is the ripe drupe, the flowers, green drupe and bark being less toxic. Of the drupe the only part which is toxic is the soft yellowish epicarp, the exocarp and endocarp being harmless. Steyn finds the drupe toxic for pigs and sheep, less so for fowls, muscovy ducks and the goat. An attempt made to poison dogs failed, as they vomited the material. Steyn finds further that the toxin is thermostable and that it is soluble in alcohol, ether and chloroform.

So far as I am aware, the leaves have not been used by veterinarians in Australia for the treatment of gastrophilus (bot) infestation for which other remedies involving the use of recognized drugs are employed.

As to the danger to man, no definite opinion is expressed, but the fact that the so-called berries are highly toxic for at least one type of animal possessed of a single compartment stomach would I should think be significant, and Mr. Maiden's record of the poisoning of a school-child is in keeping with our knowledge as cited above.

## A NOTE ON THE SENSORY CHARACTERS OF THE NIPPLE AND AREOLA.

By F. WOOD-JONES and JOHN B. TURNER,
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IT is a strange fact that when John Hunter enumerated those sensory tactile areas that were "more capable of giving with nicety the superficial structure of bodies than any of the others,"[1] he elected, as his third example, the *glans penis*. From the work of von Frey and of Head,[2] we now know that the discrimination of the superficial structure of bodies brought into contact with it is a sensory activity quite outside the functional rôle of the *glans penis*.

Among the older anatomists it was usual to draw a close parallel between the sensory characteristics of the *glans* and of the nipple. Both parts were described as being "of an extremely quick sense."[3] In writing of the nipple, Thomas Gibson says: "It is of an exquisite sense, and resembles something the glans of a man's penis."[4] When we come to test this exquisite sense of the nipple we encounter the same strange condition as is familiar in the case of the *glans*, for the nipple and the areola are typically incapable of feeling the light sensory stimulus produced by cotton-wool or testing-hairs.

It is likely that this fact is familiar to clinicians and that it has already been adequately dealt with in the literature, but so far our search for any published account of the sensory qualities of the

nipple area has been unavailing. We recognize that this failure to be acquainted with any previous work on the subject may result rather from our comparative literary isolation than from the real absence of such work.

In every way the quality of sensation within the areolar area is typically protopathic or thalamic in its character. The appreciation of the stimulus of cotton-wool or testing-hairs ceases abruptly at the margin of the specialized, pigmented areolar area. With the prick of a needle the characteristic protopathic reactions are obtained, and with this interesting extension that, as the intensity of the pain stimulus is increased, all stimuli, even if directed to the periphery of the areolar area, are referred to the nipple itself, while stimuli on the surrounding breast are referred to the areola. To heat and cold stimuli the reactions of the area are, again, typically protopathic and a very considerable delay is necessary for the appreciation of the stimulus.

The appreciation of separated compass-points cannot be tested, since a separation equal to the maximum diameter of the areola cannot be detected with certainty anywhere on the mammary area. The recognition of the nature and texture of substances brought into contact with the nipple and areola is at a remarkably low ebb. It is very remarkable that a rough piece of glass paper (Oakey's number 2) drawn somewhat heavily across the nipple has been diagnosed by women as "something soft and smooth."

On squeezing the nipple between the finger and thumb the milder degrees of pressure are interpreted as contact, and, on continuing the pressure, pain is somewhat sudden and "unpleasant" in its onset. It is of interest to note that, coincident with this sudden release of unpleasant feeling, there is a well marked dilatation of the pupils. Dilatation of the pupil consequent upon stimulation of the nipple has been previously reported by Osborne.[5]

### References.


(1) John Hunter: "Essays," Volume I, page 183.
(2) Sir Henry Head: *Brain*, 1908, page 389.
(3) Lawrence Heister: "Compendium of Anatomy," 1752, page 153.
(4) Thomas Gibson: "Anatomy of Human Bodies," Third Edition, 1688, page 234.
(5) W. A. Osborne: "Australasian Association for the Advancement of Science," Volume XVIII, 1926, Presidential Address, Section N, page 837.


## FRACTURES OF THE MAXILLARY ZYGOMATIC REGION AND THEIR TREATMENT.


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### Anatomy.

IN dealing with the maxillary zygomatic region it is well to refresh our knowledge of the new terminology, otherwise the older generation of practitioner will be confused. The main alteration is in that wnat we knew as the malar bone is now called the zygomatic; placed to the lateral side of the orbital cavity, it forms the sharp lateral border of that hollow; below it rests upon and is united to the maxilla (old terminology, superior maxilla); behind it enters into the formation of the zygomatic arch, which bridges across the temporal fossa. This arch consists of the temporal process of the zygomatic bone and the zygomatic process of the temporal. This latter process has two roots, an anterior and a posterior, between and below which are placed the mandibular fossa in front and the external acoustic (old terminology, auditory) meatus behind.

The infraorbital nerve is the terminal branch of the maxillary nerve which enters the orbit through the inferior orbital fissure and traverses the infraorbital canal to reach the face. In the infraorbital canal the infraorbital nerve supplies one and sometimes two branches to the teeth; these reach the alveolar arch in bony canals and supply the incisor, canine and premolar teeth.

After emerging on the face from the infraorbital foramen the main nerve divides into a number of radiating branches arranged in three sets: (*a*) for the lower eyelid, (*b*) for the skin of the side of the nose, (*c*) for the cheek and upper lip.

We will now proceed to deal with fractures of this region.

### Ætiology.

The ætiology is varied; direct violence of some kind is practically always responsible; either a kick at football, blow with the fist *et cetera*. Latterly aeroplane crashes are contributing their quota.

### Signs and Symptoms.

The lesion may form part of multiple injuries and escape observation for some days. They are nearly always depressed fractures, so that we rely upon visible deformity and signs of pressure upon the infraorbital nerve. The deformity is often obscured by swelling of the soft tissues, but even then in many cases, by running the finger along the orbital margin and comparing it with the other side, they may be detected. Nerve pressure is indicated by numbness of the gum, half the upper lip, the face below the infraorbital margin and the side of the nose; soreness of the anterior teeth on the affected side is sometimes complained of; the lip feels very thick on that side. There may be failure of proper coaptation of the lower and upper teeth. There is often ecchymosis of the eyelids, sometimes subconjunctival.

Tenderness at the site of the fracture is often a guide.

In one case in which the fracture involved the zygomatic arch towards the temporal end, there was difficulty in opening the mouth and depressing the lower jaw.

### X Ray Evidence.

X ray evidence is uncertain; in many cases a normal report is given, where subsequent operative procedure has shown a fracture. Careful comparison of the outline of the zygomatic bone with that of the other side will sometimes reveal a lesion. Interpretation in the maxillary region is notoriously difficult, as anywhere about the base of the skull.

### Treatment.

I have seen between twenty and thirty of these fractures and I have invariably treated them by making a small incision below the lower eyelid down to the orbital margin. I have then laid the handle of an osteotome (wrapped round with lint) over the frontal region near the outer canthus of the eye. Using this as a fulcrum I insert a periosteal (skull) elevator, preferably roughened towards the end on one side, and with as long a handle as possible, into the wound. The fulcrum is held firm and by lever action the depressed bone is raised. The lever may slip once or twice before success is attained; the bone will be felt and heard to move.

The wound is closed with a mattress stitch of horsehair, catgut or iodized silk and covered with compound tincture of benzoin. The contour of the face will in practically every case be restored immediately. This, of course, is done under a general anæsthetic; as the operation is only a matter of a few minutes the anæsthetist may give ether and then stand aside; no intranasal, intrapharyngeal, or intralaryngeal methods are needed.

As with all fractures early reduction is wise; it is then easier, but it is quite feasible even five or seven days later, possibly longer, but I have no experience of long-delayed operations. Early reduction is the keynote to the treatment of all fractures.

When the fracture is along the zygomatic arch, of course the incision is made in that position; the tender spot should previously have been marked out with skin ink or silver nitrate solution. The difficulty in opening the jaw will disappear immediately the fracture is raised.

Some medical men are inclined to think that a dental specialist is the most fitted to tackle those cases when the teeth fail to appose, unmindful of the fact that the procedure I have outlined not only raises the depression but apposes the teeth at the same time. It has the merit (or is it demerit these days?) of being simple, whereas intraoral manipulation and the application of a dental splint exposes the patient to more risk of post-operative pulmonary complications (partly because of the length of time occupied). This is no mere fanciful objection.

### After-Treatment.

Little after-treatment is needed. Mouth washes may be occasionally used. The numbness is usually improved next morning and as a rule has gone in several weeks; as a rule it goes quicker when the depression has been lifted earlier. The patients are allowed to go home in about five days. In some cases it has been impossible to detect the scar subsequently.

There is an occasional complication that should be mentioned. In most cases probably the maxillary sinus (old terminology, antrum of Highmore) is filled with blood clot; as a rule this absorbs and gives no trouble; occasionally it becomes infected from the nose, especially if the patient has a cold. In these cases the assistance of an ear, nose and throat surgeon is sought; he generally proceeds to irrigate the antrum through its communication with the nasal cavity *viâ* the middle meatus. The inflammatory symptoms then soon subside.

## POISONED SPEARS OF THE AUSTRALIAN ABORIGINES.

By JOHN MACPHERSON, M.A., B.Sc., M.B., Ch.M. (Sydney),
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THE Australian native blacks employed many species of the vegetable kingdom as poisons to stupefy fish and even emus and so facilitate their capture. Singularly little use, however, was made of plant poisons for their spears in warfare. Some time ago a writer (H. J. M.) in the Sydney *Bulletin* mentioned that the Cunjeboi (*Colocasia macrorrhiza* Schott) was used by the aborigines to poison their spear-heads. This plant grows along the coastal areas of Queensland and New South Wales, and is known also as the Creek Lily. Its active principle is a very powerful and acrid irritant poison, but is extremely volatile and so would be suitable only for immediate use. The Cunjeboi belongs to the family Araceæ.

### The Milky Mangrove.

Many members of the great family Euphorbiaceæ possess a dangerous acrid, milky sap, and some African native tribes employ the poisonous juice of species of Euphorbia or Spurge to poison their spears. In Australia, according to the late Charles Hedley, of the Australian Museum, the aborigines of Port Curtis, in Queensland, used to poison their spears with the milky juice of the milky mangrove (*Excœcaria agallocha* Linné) belonging also to the Euphorbiaceæ. This tree is known also as "The River Poisonous Tree" or "Blind your Eyes." In Fiji it is "Sinu Gaga," and in Norfolk Island, "Sapota." Its range extends from northern New South Wales, Queensland and Northern Australia through the East Indies to tropical Asia, including India. It is a small tree with fig-like leaves and light soft wood. It occurs abundantly in mangrove swamps and near salt rivers. On incising the bark of the trunk, there exudes an abundance of acrid, dangerous milky juice, which is so volatile that, in spite of the greatest care, it would be impossible to collect even a quarter of a pint without being affected. Its reputation is so sinister that it has been stated that even one drop falling upon the eye will destroy the sight. In India the natives are afraid to cut the branches for fear of the sap (called "tiger's milk") causing blistering of the skin or blindness if it should come in contact with the eye. Some sailors sent ashore at Amboyna in the Moluccas to cut timber became furiously maddened from the intense pain produced by the juice falling on their eyes. Some lost their sight. Woodcutters where it grows have reported inflammation and ulceration of the skin from the juice scattered by the strokes of the axe. Other symptoms are an acrid, burning sensation in the throat and severe headache. The juice is also a powerful purgative. For industrial purposes a good india-rubber or caoutchouc may be

prepared from the milk. The native tribes of Eastern Australia and New Guinea employ the poisonous juice in the treatment of chronic ulcers and leprosy. In Fiji the leper is fumigated with the smoke of the burning wood. The patient, bound hand and foot, is suspended in a hut and literally smoked alive over a fire of this wood. The acrid fumes cause exfoliation of the surface lesions, and could be merely palliative. If the sufferer survived the treatment, it is stated that he had a new lease of life. In India the juice applied to inveterate ulcers produces marked benefit. The leaves in the form of a decoction are also used similarly as an application for such ulcers.

*Excœcaria Dallachiana* Baillon has been regarded by some as a variety of the foregoing species. Its Australian habitat is New South Wales and central and south-eastern Queensland. It is a small tree growing in the drier scrubs and is reputed to have caused mortality among stock. When the bark is cut, there exudes a white viscid, very poisonous juice in great abundance. One tree may yield a gallon in a few minutes. This sap is so virulent when fresh that even the aborigines will not touch it. It has all the properties of gutta-percha or india-rubber, and the tree is often so called. It contains 19·61% of caoutchouc, soluble in naphtha; 6% of albuminoids, insoluble in water; 5·5% of alcohol and tannin as well as other constituents. It yields also a useful timber. It might be noted here that Para rubber is furnished by *Hevea brasiliensis* Muller and other species belonging to the Euphorbiaceæ.

A third species is *Excœcaria parvifolia* F. von Mueller, the gutta-percha tree of the Gulf of Carpentaria and Jil-leer of the Cloncurry aborigines. This tree is found along the Mitchell and other rivers in north-west Queensland and Northern Australia. It grows to a height of twenty feet and yields a useful timber and gutta-percha. It is full of an acrid milky juice. On cutting a stick of the tree the sap is prone to get on the hands, causing inflammation, or on the eyes, inducing much pain and temporary blindness. This blindness, however, is only of short duration and no after-effects are to be apprehended. The native blacks made medicinal use of the bark mashed up in water in a wooden kooliman (or bowl) and heated with stones from an adjacent fire. This was applied as a lotion to all parts of the body, rubbed well in. It was used for various infirmities, especially if attended with pain. The tree bears small leaves in clusters and grows especially in areas subject to floods.

*Clerodendron inerme* Gaertner of the family Verbenaceæ is a plant extending from New South Wales to Northern Australia and New Guinea. This plant is used by the natives of New Guinea to heal spear wounds.

### Poisoned Spears in New South Wales.

Over thirty years ago I was in practice at Glen Innes, in northern New South Wales. I there came closely in contact with the remnants of the aboriginal tribes and was informed by them that, in the olden days, poisoned spears were considerably in use. The men covered them with the melted resin of the grass tree (*Xanthorrhœa*). They were then passed on to the women, who alone knew the secret of impregnating them with the powerful poison. A wound from such a spear was generally fatal, unless treated by a female. Men were powerless to cope with such cases. Ordinary spear wounds were treated by sucking. An Inverell lubra informed me that, in her tribe (Yookumbul), spears were poisoned by a substance obtained from the mountains. An old man of the Ngarrabul tribe (Glen Innes and the adjoining country) was in great dread of poison (mittee). He said that the Inverell blacks obtained it originally from Queensland and kept it in a small vessel. It was like a scent and was in use almost up to the time of my residence there. Great secrecy attended it and even the police were unable to trace it. If the possessor were at enmity with anyone, his victim's fate was sealed. During his absence from camp the poison was sprinkled on his rug and when he slept he died "all puffed out." During my residence in the Glen Innes district current rumour ascribed the death of some aborigines to a mysterious poison employed by hostile natives. There can be no question that, in earlier days, the aborigines were in terror of being poisoned to death by hostile blacks in revenge.

Mrs. J. S. Litchfield, writing of North Australia, states that she never heard of the blacks using designedly poisoned spears, but that some spears were made of red mangrove wood, which, of itself, possessed poisonous properties, the least scratch from such wood being liable to become an ugly festering wound. This species is *Bruguiera Rheedii* Blume of the family Rhizophoraceæ.

### Neilyeri or the Poison Revenge.

Leaving the vegetable kingdom, we find other methods of making spear wounds more lethal. The Reverend George Taplin describes the poison revenge or Neilyeri of the Narrinyeri tribe of the Lower Murray and Lakes Albert and Alexandrina, in South Australia. Writing in 1873, he states that the custom was introduced about sixteen years previously from the Upper Murray and was exceedingly deadly, causing great mortality. The native using this method, took either a spear-head, a piece of bone (often human) or a piece of iron, which he sharpened to a fine point and cut to a convenient length, generally about six or eight inches. This was then inserted into the fleshy part of a putrid corpse and kept there for some weeks. The heathen black then took a bunch of spun hair or feathers and soaked it in the fat of a corpse, extracted for the purpose. In this bunch he wrapped the point of the short dagger-like Neilyeri and used it as a very deadly poisoned weapon. Stealing upon his enemy while the latter slept, if he but pricked him once with the Neilyeri, he inoculated him with virulent organisms and doomed him to "horrible agonies and probably death." Doubtless a severe septicæmia or "blood poisoning" ensued. The old natives were well acquainted with the virulent nature of the fluids of a corpse and possibly their strenuous objection to earth burial was in order to retain this method of revenge in their hands. Neilyeri

was not the invention of the Narrinyeri, but the old natives used it to maintain their reign of terror, as their ordinary sorceries were being sceptically received with the advance of civilization. The Neilyeri inspired dreadful terror; even the mere pointing of it occasioned fright and downright illness. No other poison was known to the Narrinyeri; they were amazed to learn that death could be produced by something taken into the stomach.

Dr. Herbert Basedow observes that the Australian aborigines do not poison their spears in the ordinary sense of the word. However, the Ponga Ponga and Wogait tribes of Northern Australia sometimes employ a method resembling that of the Narrinyeri. They take the vertebræ of a large fish, like the Barramundi, and insert them into decaying flesh, generally the putrid carcass of a kangaroo. Subsequently they are tied to the head of a fighting spear. The spear thus becomes far more deadly, and the stricken enemy more quickly succumbs. The practice, however, is not general, and the spear never leaves the hands of the owner.

In my younger days I frequently heard tales of the blacks poisoning their spear points by digging them into ground infected with tetanus organisms, as occurs in other parts of the world. I have never been able to authenticate such an assertion by any reference in the literature. There is nothing in Australia comparable to Curara, *Strophanthus Kombé* or Upas (*Antiaris toxicaria*)—the deadly arrow poisons of South America, Africa and Java.

### Bibliography.

J. H. Maiden: "Indigenous Vegetable Drugs," Part II, 1899 (*Excœcaria* species, page 19; *Clerodendron*, page 10).

Edward Palmer: *Proceedings of the Royal Society of New South Wales*, Volume XVII, page 107, 1883 (*Excœcaria parvifolia*).

T. R. St. Johnston: *Australasian Nurses' journal*, July 16, 1919, page 190 (*Excœcaria agallocha* in leprosy).

J. C. Brunnich: *Queensland Agricultural Journal*, October, 1898, page 285 (*Excœcaria Dallachiana*).

J. S. Litchfield: "Far North Memories," 1930, page 123 (Red Mangrove).

The Reverend George Taplin: "Native Tribes of South Australia," 1879, pages 29–31 and 47 (Neilyeri).

Herbert Basedow: "The Australian Aboriginal," 1925, page 198 (poisoned spears).

## Reports of Cases.

### URINARY INFECTION WITH TRICHOMONAS VAGINALIS IN THE MALE.

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RECENT contributions to this journal dealing with infection of the female genital tract by the flagellate, *Trichomonas vaginalis*, have directed attention to this organism and reopened the undecided argument as to its pathogenicity. A search of the literature fails to reveal the report of the occurrence in Australia of a case of urinary infection in the male with this parasite. For these reasons it is considered that the case here recorded is of sufficient interest to warrant publication.

Since the discovery by Donné in 1837 of the flagellate, *Trichomonas vaginalis*, there has been much discussion of this parasite and its habits. Its characters are well known: Typically pear-shaped, it occurs in a variety of forms, and may be pyriform, spheroidal or amœboid. In size it varies from 15 $\mu$ to 25 $\mu$ in length and from 10 $\mu$ to 15 $\mu$ in breadth. It has a definite undulating membrane and four flagellæ, and is actively motile. Its life history has never been fully elucidated. Does it multiply by fission, or is there some kind of sexual reproduction? Does it form spores? It has been found in the mouth, the male urethra and in urine, but is generally found in the vaginal secretion, usually in the presence of vaginitis, when the exudate is acid in reaction.

Brumpt in 1913 found the parasite present in 10% of women examined in a clinic in Paris; other observers report its presence in up to 30% to 40% of their patients.

The mode of transmission from infected to non-infected persons is incompletely known, and the method of infection in women unknown. Although causing a condition resembling and frequently associated with gonorrhœa, the organism has been found in virgins, and it is possible that fæcal contamination may be responsible in some cases. Infection of the male is assumed to be by coitus, and the infected male may then transmit infection to another female. The relation the parasite bears to disease is also undecided. Conflicting views have been expressed as to the pathogenicity of the organism, which has been isolated from swabs taken from a normal vagina.[1] [2] [3]

Generally considered non-pathogenic, it is usually associated with and aggravates a coincident inflammatory condition of the affected part. It is of interest that the treatment of vaginitis, with which *Trichomonas vaginalis* is associated, based on the biochemical reactions of that organism, alleviates the condition and may result in cure.

Visher[4] reports a case of acute pyelitis in a female patient in which the organism was isolated from urine obtained by the cystoscope from the bladder, although urine obtained from the kidneys by ureteric catheterization showed no parasites. There was associated vaginitis and cervicitis, with *Trichomonas vaginalis* abundantly in the secretions. Apparently the organism was responsible for cystitis (at least) and infection was probably by direct spread from the vagina.

### Clinical History.

A male patient, a widower, aged seventy-two years, had a past history which was irrelevant. He had not ventured out of temperate regions. On August 26, 1930, he was subjected to laparotomy for the operative treatment of cholelithiasis. It was found that the gall bladder contained a single large calculus and there was one small stone in the common bile duct. These were removed and the gall bladder was drained. For a few days after operation progress was uneventful and there was a free drainage of bile from the drainage tube. Drainage continued for some weeks after the tube had been removed, the fluid being bile-stained and purulent.

During this period his general condition was good, and on September 28, 1930, the patient was allowed to sit out of bed. The following evening his temperature rose to 38·2° C. (100·8° F.) and there was complaint of abdominal pain and vomiting; free drainage from the wound continued. For the next few days his general condition became worse, with pain in the right hypochondrium, vomiting and obstinate constipation. The temperature had dropped to normal, micturition was painful, with suprapubic pain and scanty urine. On October 4, 1930, the condition was unaltered and examination of the urine showed the following features. The reaction was acid. Albumin was present in large quantity. Microscopical examination revealed crystals of calcium oxalate, many pus cells and red blood cells, much epithelial *débris*, mainly of bladder origin, many motile bacilli and motile parasites, about 14 $\mu$ to 24 $\mu$ in diameter, ovoid in shape, with spine at one end carrying three to four rapidly moving flagellæ and an active undulating membrane. These organisms conformed in every detail to the flagellate, *Trichomonas vaginalis*.

Rectal examination revealed a moderate degree of enlargement of the prostate gland, but there was no tenderness.

The patient was given a mixture containing 3·6 grammes (sixty grains) of potassium citrate every four hours, with free fluids. Within twenty-four hours his condition

was obviously much better; he volunteered feeling improved and asked for solid food, which had been refused for several days. Jaundice was obvious at this stage and persisted for about four days.

On October 8, 1930, improvement had been maintained; there was no vomiting or abdominal pain; drainage from the wound had ceased and the temperature was normal. On October 11, 1930, urine examination revealed the following characters. The reaction to litmus was amphoteric; many pus cells and motile bacilli were present; a few granular casts, but no flagellates were seen.

In order to render the urine alkaline in reaction, the dose of potassium citrate was increased to eight grammes (120 grains) every four hours. From this period progress was rapid and permanent, the wound healed rapidly. The appetite was good. The quantity of urine passed daily varied from 1,500 to 3,000 cubic centimetres (50 to 100 fluid ounces).

On October 13, 1930, the urine was slightly alkaline in reaction; casts were present in increased quantity, and in one, slightly granular, a degenerate form of *Trichomonas* was seen. A few flagellates were seen, mainly ovoid and non-motile. Although a small number had slowly moving flagellæ, the majority were obviously degenerate forms. The dose of potassium citrate was increased to eight grammes (120 grains) every two hours during the day and every four hours at night.

On October 15, 1930, a urethral smear, obtained by prostatic massage, was examined for parasites, without result. Examination of a smear, obtained by swabbing the throat, failed to reveal any organisms. Examination of the urine revealed a slightly alkaline reaction. A few pus cells, many red blood cells and many motile bacilli were present and a few degenerate non-motile forms of parasite were seen.

On October 18, 1930, in spite of the above medication, the urine was only faintly alkaline in reaction, and a mixture containing two grammes (30 grains) of sodium bicarbonate in 10% solution of glucose was given every four hours.

On October 19, 1930, for the first time the urine gave a strongly alkaline reaction to litmus; degenerate forms of the parasite were present in small number. These were absent from a specimen examined the following day.

On October 21, 1930, with the object of acidifying the urine, a mixture containing 2·4 grammes (40 grains) of sodium acid phosphate was administered thrice daily, the previous mixtures being discontinued.

On October 25, 1930, the urine was slightly acid in reaction. A few pus cells and red blood cells were observed; no forms of *Trichomonas* were seen.

On November 1, 1930, the urine was unchanged in character and content. The patient was discharged the following day, symptomless and in very good general state.

Subsequent efforts to trace this man for further examination and observation have been unsuccessful.

### Comment.

The source of infection by the flagellate is obscure. The age of the patient, his relative isolation and personal habits, render it exceedingly probable that the infective parasite had been present in the lower urinary tract and lying dormant for years. Urinary symptoms failed to manifest themselves until five weeks after the abdominal operation. Was the parasite in this case pathogenic? The writer is of the opinion that the condition was one of pyelitis and cystitis due to infection by *Bacillus coli communis*, and the occurrence of the flagellate was coincidental.

The line of treatment adopted should have been efficacious in an infection of the urinary tract with either organism, together or separately. An interesting feature is the disappearance of the parasite from the urine when it was rendered alkaline and its failure to reappear on acidification, although, from the presumed length of period of its residence in the host, one might have expected it to be more resistant to variation of environment. The detection of a renal cast containing a flagellate form draws attention to the possibility of the organism ascending to the renal tissue itself.

### Acknowledgement.

I wish to thank Miss E. Williams, of the Walter and Eliza Hall Institute for Pathological Research, Melbourne Hospital, for her assistance in identifying the organism and for her advice during the investigation of the case.

### References.

(1) C. M. Wenyon: "Protozoology," Volume I, 1926, page 658.
(2) Charles F. Craig: "A Manual of the Parasitic Protozoa of Man," 1926.
(3) H. Carl Davis and Charlotte Calwell: "Infections with Trichomonas Vaginalis," *Journal of the American Medical Association*, Volume XCII, 1929, page 306.
(4) John W. Visher: "A Case of Renal Infection with Trichomonas Vaginalis," *ibidem*, page 2098.

## A CASE OF PELLAGRA.

By H. H. BULLMORE, M.B., Ch.B., M.R.C.P. (Edin.),
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IT is well to draw attention to a deficiency disease at this time of stress amongst so many of our population.

The subject of this report is a healthy looking girl of twelve years of age, with a slightly flushed but clean skin on the face, at present. She was born in England and for the last four years has lived in Australia.

I have had some difficulty in probing her past history and symptoms on account of the fact that the child's intellect is not bright, and it is rather difficult to get a connected history from the mother. Apparently the child lived with her mother (after the latter had been left to fend for herself two years ago) for a few weeks. The Welfare Society then handed her over to a home, from which place she ran away three times in as many weeks. Apparently the Police Department has since interested itself in the child's welfare. In June, 1930, she was with a younger sister placed in an orphanage, where she remained until the middle of January of this year.

According to the mother's account, the child had to be protected from the sun in England, as she became "sunburnt" very easily. The only other item in the early history of interest was that as an infant she suffered from "inflammation of the bowels" and that, as her first teeth came through, they had to be extracted on account of abscesses at their roots.

It is significant that the patient was brought to Saint Vincent's Hospital "because she had great pain and seemed to lose all power in her right side, as if she had paralysis." Since the patient has been in hospital she has occasionally complained of pain in the right thigh radiating to the ankle. On admission to hospital the patient's skin manifestations were those of a typical text book description of pellagra. The hands and forearms were of a lilac colour, the skin dry and much thickened, with a sooty discoloration of the thickened epithelium on the dorsal surface between the fingers. The upper arms were scaling in rather large flakes. The elbows were covered with a rusty coloured keratosis, as were the knees. A collar of black keratosis, sharply defined by the margin of a low necked dress, surrounded the neck behind and the chest in front. The keratosis faded gradually into a thickened, pigmented skin ending at the hair margin. The face was reddened, as if from sunburn, with a sooty appearance at the hair margin. Upon the lower legs were scattered, here and there, sharply defined, pigmented scars 18 millimetres (three-quarters of an inch) in diameter. The legs were scaling from the knees to the lower third. Bilateral symmetrical keratosis of the ankles and feet completed a most striking picture of the condition, the thickened skin being quite sooty black in colour.

The patient suffered many scrubbings with a nailbrush and soap at the hands of her mother in an endeavour to remove the pigmented skin, to no avail. Such was the patient's objective condition on admission.

FIGURE I.
Showing side of neck of patient with pellagra.

FIGURE II.
Showing back of neck and shoulder of patient with pellagra.

There is a vague history of some alimentary disturbance, but little weight can be attached to this.

Apparently the first manifestation of her condition occurred early in November, when her face became red and "sunburnt"; a similar redness on the neck became scaly. The hands at the same time were very "raw looking." Red patches occurred on the legs which formed blisters and then sores; the legs became scaly, then the black skin appeared.

While the child was in the orphanage, the diet consisted of bread and dripping for breakfast, meat, cabbage and potatoes and rice or custard for dinner, and at 5 p.m. bread and butter or bread and jam and tea with all meals.

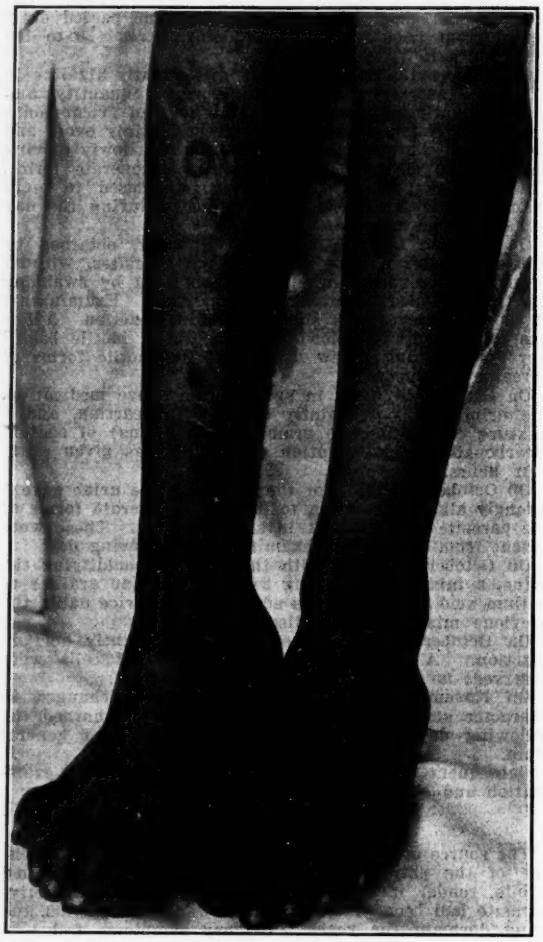

FIGURE III.
Showing legs of patient with pellagra.

The younger sister was affected to a less degree with the same condition of the skin as her sister. From inquiries at the orphanage I understand that there are no similar cases.

The patient's skin is becoming normal remarkably quickly since she has been in hospital, the treatment consisting of a diet of meat, eggs, green vegetables, as much milk as she will take and yeast.

The photographs here published were taken two weeks after the patient's admission and, although they show the condition of the skin when it had considerably abated, still give a clear conception of a typical picture of the skin conditions seen in pellagra.

# Reviews.

## A TEXT BOOK OF SURGERY.

"A MANUAL OF SURGERY," by Stewart and Lee, is a well planned one volume text book.[1] The book is modern and is a monument to the care, patience and industry of the authors. To compress a useful treatise on surgery into one manageable volume of 1,200 odd pages is a difficult task and we admire the result of the authors' effort.

It is impossible to prescribe what space the various aspects of disease should occupy in a well compounded and well balanced volume, yet this is one of the most important considerations in the production of such a book as this. We feel that our authors have sometimes failed to preserve a true balance. It should not be necessary, after stating a general principle of diagnosis, to give a long list of all the examples in surgery which illustrate it, especially when it is done at the expense of the space which could be more properly devoted to treatment.

This volume is divided into thirty-one chapters. Chapters I to V are taken up with general considerations, namely, diagnosis, anæsthesia, disinfection, surgical technique and bandaging. Chapters VI to XIII are devoted to the consideration of surgical pathology. General surgery considered according to the systems of the body occupy the remaining eighteen chapters of the book.

There is a definite lack in some of the paragraphs on treatment; we can imagine a lonely man, facing an emergency without a colleague's sustaining wisdom, feeling but little less desolate after reading some of them.

Sometimes the essential point of a specially designed operative procedure is missed in the description, as, for instance, in the account of Macewen's internal osteotomy for knock-knee. The importance of the small incision in skin and periosteum, the cutting of the bone in the right place, and the careful avoidance of any other injury to the periosteum than the first small incision are insufficiently emphasized.

In the treatment of burns only the treatment by "tanning" is mentioned. The method of thorough disinfection and paraffin coating deserves mention, as it makes a very satisfactory scar, a very important consideration in many cases.

In the chapter on facial deformities the authors scarcely mention the methods of the ever-increasing number of surgeons who attack the problems of hare-lip and cleft palate in the first few weeks of life, thereby securing a practically sterile field and the more ductile tissues of early infancy for their manipulations.

The suggestion that a tooth which has had an apical abscess may be treated and left in the patient's mouth without prejudice to that patient's health will be bitterly contested by many, and the statement that bilharziasis is the cause of black-water fever is definitely wrong. The bilharzia is a bladder parasite and causes hæmaturia. Black-water fever is a hæmoglobinuria closely associated with malaria, though not definitely proved to be a result of it. The illustrations are good and clear, and in our opinion too few. There are many printer's errors in this volume requiring correction in future reprints or editions.

The faults found with this book are mostly of minor importance. The book will be useful to those whose surgical knowledge is built on a solid foundation.

## DEAFNESS.

DR. V. NESFIELD has written a book on deafness and its alleviation.[2] In the early chapters he describes elementary anatomy and physiology, with theories of middle ear function and the mechanism of deafness. Enlarged tonsils and adenoids are stressed as a cause of catarrh and *otitis media*, but the nasal sinuses are entirely overlooked.

In a brief description of tonsillectomy rather discarded views are expressed in advocating the guillotine as safer and more bloodless than dissection in the adult, and a view that incomplete tonsillectomy often meets the requirements equally as well as total enucleation appears to be based on an assumption that tonsil enlargement is the main reason for operation. Diathermy receives no mention, a heated probe or cautery being considered effective. The author's operation for ventilation of the middle ear by a modified mastoidectomy is described; it is claimed to be a safe procedure and more effective than Eustachian catheterization. The mastoid antrum is exposed and the posterior meatal wall removed nearly to the annulus, a large fistula into the external meatus being left. Subsequent loosening of adhesions and opening of the Eustachian tube is claimed, so that Valsalva blowing can be carried out. From three months to a year may pass before benefit is noticed and reeducation and occasional incision of a membrane which closes the fistula are advised.

A series of cases is quoted with encouraging results; we should have preferred a full tabulation of every case, however, with details of recognized clinical tests carried out before and after operation. There have been no serious consequences nor damage to hearing, while hope is offered for even adult deaf mutes by the author with this procedure.

Altogether the work lacks scientific presentation and cannot be accepted without further detail. At the same time Dr. Nesfield is to be congratulated on his enthusiasm and energy.

## A COMMUNITY HEALTH SCHEME.

As has been repeatedly proclaimed, particularly since the war, there exists in all centres of population an enormous proportion of unfit, and the expense incurred, directly and indirectly, in the effort to sustain them is a severe drain on the resources of the community. That the remedies emanating from the eugenists are mostly unacceptable, if not fantastic, while the palavers and paregorics of the politician and the philanthropist, though they may quiet the bowels of the compassionate, tend in the end to aggravate the evil, is the essence of the preliminary argument of "The Case for Action," by Dr. Innes H. Pearse and Dr. G. Scott Williamson.[1]

While there exist many organizations for social betterment and to give aid in cases of distress or sickness among the artisan class, they are all founded and maintained by philanthropic or religious bodies and their medical activities, if any, are subsidiary. This small book is an account of the inception, working and outcome of a medical-social centre tentatively founded on a health basis. Initiated by "a small company of private individuals" and known as the Pioneer Health Centre, it occupied a small house in the middle of a densely populated district. A resident medical officer, a social secretary and a housekeeper were installed, and families living in the neighbourhood were invited to join a "family club." In return for a small weekly subscription per family they were offered a periodic medical and dental overhaul for each individual, a parents' clinic served by man and woman doctors, antenatal, postnatal and infant welfare clinics, an orthopædic clinic and a children's nursery. On joining, each individual was given a searching medical examination and records were kept for future reference, statistical and research purposes. An annual review of each member's state of health was obligatory. No treatment was given; where this was required members were advised where to obtain it. Examinations were made at

[1] "A Manual of Surgery for Students and Graduates," by F. T. Stewart, M.D., and W. E. Lee, M.D.; Sixth Edition; 1931. Philadelphia: P. Blakiston's Son and Company. Royal 8vo., pp. 1320, with 787 illustrations. Price: $10.00.

[2] "Deafness and its Alleviation by Operation," by V. Nesfield, F.R.C.S.; Second Edition, 1931. London: H. K. Lewis and Company Limited. Demy 8vo., pp. 177, with illustrations. Price: 10s. 6d. net.

[1] "The Case for Action, a Survey of Everyday Life Under Modern Industrial Conditions, with Special Reference to the Question of Health," by I. H. Pearse, M.D., B.S., and G. S. Williamson, M.C., M.D.; 1931. London: Faber and Faber Limited. Crown 8vo., pp. 183. Price: 5s. net.

times to suit working hours and domestic arrangements. With the development of the social side of the club full advantage was taken of the psychological and other opportunities which presented themselves. As the father came under the influence of the club his sense of responsibility was stimulated and his importance as a parent and partner with the mother suggested to him. The problems connected with pregnancy, birth control, infancy and childhood all come under consideration in the account of the work of the centre, and the authors' views can be warmly commended to everyone interested in social welfare and health. Finally, the adolescent came to the centre with his needs and problems, but at this point the limitations of the scheme as then existing became apparent. Something bigger was needed if boys and girls of seventeen to nineteen were to be included, yet without them the family as a unit would be incomplete. It was decided to close the experiment and review the position in the light of the experience gained. The conclusions arrived at are given in summary. Though it may be said that these do not embody any new ideas, they have not before been set down in the same form. The outcome was the decision to proceed on the lines indicated on a large scale. In the concluding chapter of the book a detailed description is given of the building to be erected and the scope of activities of the new health centre.

"The Case for Action" is extremely well presented and it is important that the book should be widely read. It is the more unfortunate, therefore, that it contains statements which cannot be accepted. No statistics will persuade a biologist that "the racial characteristics of foreign parents living in America were lost and the typical American physiognomy (including actual skull formation) acquired in one generation." That "over one million children in Great Britain are too unfit to take advantage of the education offered them by the State" is surely untrue. While the claim that "owing to the provision of a periodic overhaul disease was discovered and brought to treatment perhaps, on an average, six to ten years before in the ordinary course of events it would have reached a doctor's consulting room" is not scientifically expressed.

The scheme is recommended to the reader in prefaces by Lord Moynihan and the Master of Balliol.

## CANCER.

"SOME ASPECTS OF THE CANCER PROBLEM," by Professor W. Blair Bell, is mainly devoted to an exposition of the work of the Liverpool School of Cancer Research, and is well worthy of careful study.[1] Professor Bell is to be congratulated on having been able to associate with himself an influential group of lay patrons of research on the one hand and of scientific colleagues on the other. The scientific workers, of whom he is the leader, are essentially independent and free, but they have worked in effective cooperation, producing what he designates as an "aggregate mind."

The book is full of evidence of the best form of scientific imagination, probably resulting from the association of men with highly diverse trainings and outlooks. The result is that the subject is tackled from innumerable points of view in a very suggestive and helpful way. It is eminently readable and but for the fact that it is occasionally disfigured slightly by the rather caustic handling of critics, it is an altogether delightful book.

The standards of safety that are laid down for the lead emulsions are not by any means easily applicable. When the killing power in rabbits is used as a standard, it must be admitted that difficulties present themselves. Efforts have been made in Australia to get consistent results in respect of the minimum lethal dose with groups of rabbits inoculated at the same time with the same emulsion of colloidal lead, but the results have been disappointing. What can only be called individual idiosyncrasy has come in to such an extent that it is extremely difficult to determine what is a minimum lethal dose. This experience in rabbits has apparently been more or less paralleled in man, for Blair Bell tells us, on page 329 of his volume, that there is a great difference in individual tolerance to lead. Some patients showed signs of poisoning after quite small amounts had been administered, whilst others showed no untoward symptoms, although relatively large quantities had been given. This makes the standardization of lead an extremely difficult process. Other tests, such as the effect of lead on the circulation and respiration of the cat, and the abortion-producing effect on the pregnant rabbit, are difficult to apply, and their use on a more extended series of animals is very desirable before their values can be assessed.

A great amount of attention is paid in the book to the work of Warburg, and a discussion of the results of his work in its bearing on the views and work of the Liverpool school is of great interest.

Attention is largely devoted to cancer as a process, not so much to the cause of the condition. Owing to the analogy that the author insists exists between chorionic epithelium and malignant tissues, a considerable amount of work was done on the pH of the maternal and fœtal blood and organs and of malignant tissues. Whatever the value of this work may be in enlightening the cancer problem, it is of undoubted value from many other points of view, especially from the point of view of the toxæmias of pregnancy.

The effect of occupation on the incidence of cancer and the statistical public health aspects of the disease are discussed.

A very interesting section deals with the relative infrequency of the occurrence of cancer in workers suffering from occupational lead poisoning.

In dealing with the infrequency of cancer of the cervix in nulliparous women and its frequency in parous women, it is stated that there is good reason to believe that cancer of this region has supervened on a precancerous condition produced by infection or trauma. This does not seem an entirely adequate handling of the subject. For example, the irritating action of certain contraceptives might be reasonably supposed to be much more pronounced in parous than in nulliparous women, but the author apparently does not consider this possibility.

The changes occurring in the serum of cancerous patients are dealt with in a very informative manner and merit the further attention of research workers.

A description of the innumerable preparations of lead that have been tested by the Liverpool cancer research authorities and others is worth perusal by any who propose to take up the subject.

A selection is given of the different classes of patients that were treated by lead, and one cannot read the account of recoveries without feeling that a large amount of very careful, patient and reliable work has been rewarded not infrequently by definite success. The quantities of lead given to those patients who recovered have usually been very large, and it seems doubtful whether any large series of patients has been adequately treated in Australia by this method. The profound anæmia developing when perhaps less than two hundred milligrammes of lead have been given in the course of a month or so, has made the worker rather nervous about continuing the treatment. The admissions in the book of lead poisoning, sometimes with relatively small doses, are also disquieting.

One cannot close the book without feelings of admiration for Professor Blair Bell for a stupendous effort carried to some success with infinite patience and devotion. Nobody who proposes to treat cancer by lead can afford to be without the book.

[1] "Some Aspects of the Cancer Problem: An Account of Researches into the Nature and Control of Malignant Disease Commenced in the University of Liverpool in 1905 and Continued by the Liverpool Medical Research Organisation (Formerly the Liverpool Cancer Committee), Together with Some of the Scientific Papers that Have Been Published," edited by W. Blair Bell, B.S., M.D., F.R.C.S., Hon. F.A.C.S.; 1930. London: Baillière, Tindall and Cox. Imperial 8vo., pp. 557, with illustrations. Price: 63s. net.

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*References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.*

*Authors who are not accustomed to preparing drawings or photographic prints for reproduction, are invited to seek the advice of the Editor.*

## STOCKTAKING.

THE last day of June marks the end of the financial year for most business undertakings; it marks the end of the financial year for individual members of the community. Income tax assessment forms have to be sought, income must be computed, and incidentally every allowable deduction ascertained. The law is responsible for these mathematical exercises. Individuals doubtless find the process irksome and the aftermath unpleasant. Since man has to provide for his present needs and the needs of those dependent on him, and since he wishes to look ahead for the proverbial rainy day of incapacity or of old age, the annual investigation is not without its advantages. Business houses find that the yearly stocktaking is essential. The outgoings have to be ascertained. The stock in hand must be checked and valued. The cash takings are set against the expenditure. The auditor has to exercise his mystic rights before he sets his seal on the computations of the firm's accountant. Provision must be made for the future and depreciation must be considered before a dividend can be declared. At the present time the air is dark with "depression" and heavy with forebodings. At no time has stocktaking been more necessary—stocktaking in its widest sense, the estimation of reserves in money (or of the amount standing on the debit side), the discovery of means of extending activities and the provision of work and an adequate wage for employees.

But this is a parable. Medical practitioners assuredly work to gain a livelihood for themselves and their families. Many are finding it particularly difficult to "balance the budget"; some cannot strike a balance. The other side must not be forgotten. Stocktaking must include a searching into the reserves of knowledge and wisdom and the qualities of heart and mind. It were a platitude to make the statement that financial success does not spell acquisition of knowledge, that possession of know ledge does not denote accumulation of wisdom and that wisdom does not of itself bring the qualities of heart and mind that are essential to happiness. Even so, the platitude must stand. In his mental stocktaking, in drawing up his profit and loss account, a medical practitioner has to consider his income and expenditure—his income in knowledge of disease, his use of that knowledge to build up reserves of wisdom and his expenditure in the application of knowledge and wisdom to relieve human suffering and add to the common storehouse of medical science. No business man can sell what he does not possess without being guilty of fraud; no medical practitioner can give honest help if he is without knowledge, wisdom and understanding. If he be in the latter unhappy state, his profit and loss account will be a sorry spectacle. In this each man must be his own auditor, and he must, above all, be honest with himself—falsification of books will bring an inevitable and heavy penalty.

Knowledge does not come without hard work. Osler said that, "given the sacred hunger and proper preliminary training, the student-practitioner requires at least three things with which to stimulate and maintain his education, a note book, a library, and a quinquennial braindusting." Thus will knowledge be acquired. But knowledge is not wisdom; knowledge is its forbear. Wisdom is born of knowledge after nurture in the mind. Wisdom is knowledge brought to fruition. Osler expressed

it well when he said: "What we call sense or wisdom is knowledge, ready for use, made effective, and bears the same relation to knowledge itself that bread does to wheat." Here he quoted Cowper in lines which might have been written for medical practitioners:

> Knowledge and wisdom, far from being one,
> Have oft-times no connexion. Knowledge dwells
> In heads replete with thoughts of other men;
> Wisdom in minds attentive to their own.
> Knowledge is proud that he has learned so much;
> Wisdom is humble that he knows no more.

When wisdom is associated with a sound philosophy of life, the best results are possible. Knowledge, wisdom and understanding may be attained by everyone. In proportion as they are brought into everyday use will the profit side bulk largely in the balance sheet.

## Current Comment.

### TRICHOMONAS VAGINITIS.

RECENTLY there have appeared several letters in this journal concerning the occurrence of *Trichomonas vaginalis* in vaginal discharge. There seemed to be no doubt in the minds of the writers that this species of trichomonas is a pathogenic organism and that trichomonas vaginitis is a definite entity. In this issue there appears a report of infection in a small patient. Since the *Trichomonas vaginalis* was discovered by Donné in 1837, numerous other species have been described. *Trichomonas buccalis* and *Trichomonas hominis* occur in man. There is no obvious morphological difference between these two and there are only minor differences between either of them and *Trichomonas vaginalis*. Wenyon suggests that the three trichomonads of man may really belong to one species and that any alteration in structure is due to variation in nutrition. Several observers have noted that the three organisms appear to be identical when cultured in an artificial medium. There appears to be no evidence that *Trichomonas hominis* is the cause of any disorder of the bowel or mouth, and most authorities are of the opinion that, though it may often be found in acid vaginal discharge, *Trichomonas vaginalis* is a harmless commensal and any inflammatory trouble which may be present is due to some other organism.

P. Brooke Bland, Leopold Goldstein and David H. Wenrich have recently made an investigation of the incidence of *Trichomonas vaginalis* in the vaginal discharge of pregnant women in the antenatal clinic of the Jefferson Medical College Hospital.[1] Three hundred patients were examined, with the result that *Trichomonas vaginalis* was found in sixty-one instances. There is, however, a discrepancy between this figure and the figures given later. One hundred and sixty-four of the women were coloured and they accounted for fifty-four of the cases, as against thirteen of the remaining 136 white patients. Bland, Goldstein and Wenrich regard the relative frequency among the coloured women to be due to inattention to the hygiene of the parts. Only eight of the patients who harboured the *Trichomonas vaginalis* complained of any local symptoms, but many of the others, when especially questioned, "mentioned the existence of a profuse, irritating or burning yellow or white discharge." In almost every instance in which the organism was found, the vaginal discharge was thick, yellow and often foaming and contained numerous bacteria and leucocytes. There was evidence (the investigators do not say in how many instances) of vaginitis and vulvitis; acute gonococcal vaginitis was sometimes simulated, save that the discharge was frothy. Bland, Goldstein and Wenrich believe that under certain favourable conditions *Trichomonas vaginalis* may become pathogenic and may give rise to local and ascending inflammation, particularly during the puerperium. For treatment they advise first of all scrupulous and thorough mechanical cleansing by means of scrubbing with green soap, followed by washing with sterile water, then a solution of cresol; the vagina is then dried and a tampon saturated with a 10% solution of boracic acid in glycerine is inserted and allowed to remain overnight. The anal region should be kept thoroughly clean. They remark that vigorous and repeated treatment is usually necessary.

If, as Wenyon suggests, *Trichomonas hominis* and *Trichomonas vaginalis* are the same organism, it is probable that infection is carried to the vagina from the anal region. The fact that *Trichomonas hominis* is apparently non-pathogenic in the bowel is, of course, no proof that it is not pathogenic in the vagina. There are many organisms, perfectly harmless while in their normal habitat—the bowel—which produce serious effects when transferred to other parts of the body. A method of treatment referred to by Dr. Brian Swift in his letter which appeared in this journal on April 25, 1931, is that of inserting pills of "Yatren 105" into the vagina. "Yatren 105" undoubtedly has an amœbicidal action and probably it is also lethal to other protozoa; if its use without any additional treatment suffice to clear up a vaginitis associated with the presence of *Trichomonas vaginalis*, such results may be taken as further proof that this organism is the cause of a definite pathological process.

[1] *American Journal of Obstetrics and Gynecology*, March, 1931.

### HYPOGLYCÆMIA AND THE ISLANDS OF LANGERHANS.

IN September, 1928, and March, 1929, reference was made in these pages to certain tumours of the pancreas which were accompanied by hypoglycæmia. The islands of Langerhans in these pancreases were

hypertrophied. In one instance the change was frankly malignant; in another it was difficult to determine whether malignant change of a low grade was present or not; in yet another it was thought that the change might be simple hypertrophy. In a recent report of a somewhat similar case A. W. Phillips points out that the most interesting forms of hypoglycæmia are those resulting from definite pathological changes.[1] These changes fall into three ætiological categories: hepatic, endocrinal and pancreatic. Hypoglycæmia of hepatic origin is due to disturbance either in the sugar mobilization or in the storage functions of the liver; these dysfunctions are apparently caused by certain forms of hepatic disease. In regard to the endocrine system, the fact that suprarenal and pituitary extracts will raise the blood sugar and are therefore used to abort hypoglycæmic attacks, suggests that the suprarenal and pituitary glands may be a causal factor in the lowering of the blood sugar. The case reported by Phillips belongs to the third category mentioned by him—that of pancreatic change. The patient, a negro man, fifty-six years of age, suffered from hypoglycæmia, but died of subacute glomerular nephritis. The islands of Langerhans were found to be definitely enlarged, but not distorted; the cells were not degenerated. In certain areas a hyperplasia was present and in one large island fatty infiltration could be seen; there was no fibrosis or lymphocytic infiltration. Phillips states that he could not establish any relationship between the pancreatic changes and the observations on the urinary system. He thought that they had both been present for some time and were entirely separate pathological conditions.

This report of Phillips is of interest in that it draws attention to the question of hypoglycæmia and its causation. In the present instance we are not concerned with what may be called normal hypoglycæmia—hypoglycæmia of a minor degree often found in adults, resulting from change in diet or abstention from food. (One observer who would no doubt be regarded as a philanthropist by the younger generation, pointed out that not only a dose of dextrose, but a cocktail would raise the blood sugar, and suggested that this might account for the vogue of cocktails!) A hypoglycæmia associated with actual pancreatic change is a different matter. It is sometimes forgotten that there is a condition which is the converse of diabetes. When the increase in size of the islands of Langerhans is not excessive, the resulting hyperinsulism may be combated by dietetic measures. From the cases reported in the literature and from those discussed in these pages from time to time it would appear that hypertrophy of the islands of Langerhans may progress until malignant disease of the islands occurs. Whether this is a progressive change remains to be proved. As far as treatment of hypertrophy of the islands is concerned, it has been suggested by Allan, Boeck and Starr Judd that portion of the pancreas might be removed when hyperinsulism is persistent and severe. Operations have been undertaken for removal of part of the pancreas in these circumstances. In the present state of knowledge such treatment must be regarded as heroic.

[1] *The Journal of the American Medical Association*, April 11, 1931.

## INCOME TAX AND INCOME TAX RETURNS.

In next week's issue we hope to publish a special article on income tax and income tax returns. The article, written by Mr. Robert J. Stiffe, A.C.A. (Aust.), will deal with Federal income tax returns and with the returns of each of the six States. Medical practitioners will find this article most useful; Mr. Stiffe has studied the subject for many years and is well qualified to explain matters that may appear obscure.

# Special Articles on Diagnosis.

*(Contributed by Request.)*

## LI.

## ACUTE INTRACRANIAL INFECTIONS.

### The Differential Diagnosis of Meningitis and Meningism.

In the differential diagnosis of meningitis two factors become apparent: first, the diagnosis of the presence of meningitis and, secondly, the determination of the form of meningitis. There are signs and symptoms which collectively, rather than individually, suggest an intracranial infection; there are signs and symptoms which individually or collectively determine or assist in the determination of the type of infection present. In other words, there is a combination of signs and symptoms which occurs almost inevitably in meningitis, and its occurrence may be taken as being the result of meningeal inflammation or the consequent increased intracranial pressure.

#### The Diagnosis of the Presence of Meningitis.

The term meningism is reserved for a group of cases which present symptoms of meningitis and in which no pathological change can be found either in the cerebrospinal fluid or, if death occurs, in the meninges or cerebral tissues. The condition is presumably a state of toxæmia and its distinction from meningitis is of urgent importance.

The usual signs of toxæmia accompany these signs of pressure, but cannot be regarded as in any way diagnostic. *Taches cérébrales*, insomnia, restlessness, alteration of superficial or deep reflexes and pupillary dilatation occur as frequently in toxic meningism as in infective meningitis. Horder makes a useful point when he insists that if the headache and delirium coincide rather than alternate, as they do in a state of toxæmia, meningitis is probably present. Vomiting which continues through the illness after the period of invasion, as against the vomiting which is a feature of the onset of the illness, is supporting evidence of meningitis.

The mental state when the meninges are involved is fairly typical, though not universally maintained. Thus the premeningitic stage of drowsiness or stupor may deepen into mental and physical apathy and possibly later into coma, but, on the other hand, the active delirium so typical of toxæmia may be a marked feature. Yet even in

these cases the usual apathy will occur at intervals. Even in the state of apathy the patient can be roused to answer questions rationally, though the reply tends to be monosyllabic. The return to apathy is immediate. Moreover, the patient resents interference, but, unless disturbed, will remain immobile, except to register protest against the headache or other accompanying discomfort.

Stiffness of the occipito-vertebral area in the absence of any local cause, such as fibrositis, peritonsillar abscess, retropharyngeal abscess, enlarged cervical glands, *otitis media* or injury, whether superficial or deep, is an indication of the presence of meningeal involvement. If, on attempting passive flexion of the head (Brudzinski's neck sign), there be dilatation of the pupils, the indication is confirmed. In combination with these signs, the presence of Kernig's and/or Brudzinski's leg signs adds further confirmation.

The meningeal cry so frequently heard in meningitis resembles no other cry, is hard to describe and much more difficult to forget.

Papillœdema or retinal hæmorrhages do not as a rule occur until the later stages of meningitis, but a routine examination of the *fundus oculi* should not be neglected. Early information may be obtained and the finding of tubercles in the chorioid may make the diagnosis of tuberculous meningitis possible long before it could be assumed by other investigational means. In infants the bulging of the fontanelle should be noted as evidence of increased intracranial tension. A varying strabismus in combination with other signs may be added evidence, but an established strabismus, especially that due to a paresis or paralysis of an external rectus muscle of the eye, signifies more extensive damage than can result from mere toxæmia or even meningism.

Cardiac arrhythmias are more common in the early stages of meningitis than of toxæmia. These arrhythmias are usually vagal in type and appear to accompany basal involvement. Occasionally it is possible to predict an early termination of life in a case of meningitis under observation when a cardiac irregularity of rate synchronizing with the respiratory rate occurs.

When a diagnosis of meningitis has been made from the examination so far detailed, the confirmation of the diagnosis finally rests with the results of the lumbar puncture and the findings of the examination of the fluid.

The use of a manometer to measure the pressure of the cerebro-spinal fluid is not so necessary in diagnostic lumbar puncture in a suspected case of meningitis as it is in the diagnosis of the presence of a cerebral or spinal tumour. In meningitis the increase in the pressure of the cerebro-spinal fluid is usually sufficient to be obvious.

Different types of manometer have been employed, but the most convenient is a glass tube with a bore of 1·5 millimetres and 350 millimetres in length. The tube is connected to the lumbar puncture needle by means of a three-way tap which permits fluid to be drawn off. In this method, which is recommended by Brain and Strauss in "Recent Advances in Neurology," the cerebro-spinal fluid is used to record its own pressure. The normal pressure is between 100 and 200 millimetres of cerebro-spinal fluid in an adult, but in cases of meningitis the pressure may reach 400 millimetres or more, necessitating the use of an extra piece of manometer tubing attached by rubber tubing to the original manometer. In occasional instances, whether it be from faulty technique, anatomical development, blocking of the needle, blocking of the foramina, or because of the thickness of the fluid, a "dry lumbar tap" may result. In these instances puncture of the *cisterna magna* should be performed without delay. In support of this statement the writer instances two cases.

The first was a case in which for weeks the cerebro-spinal fluid remained clear under increased pressure and presented a predominance of lymphocytes, but no organisms were detected. At this stage tuberculous meningitis was suspected, but, as subsequent events proved, it was one of those rare cases of cerebro-spinal fever with a lymphocytosis in the cerebro-spinal fluid throughout the course of the disease. Then "dry tap" resulted and the case progressed as one of posterior-basic meningitis. At this time the method of *cisterna magna* puncture was first published and by this route cerebro-spinal fluid was obtained and was found to be swarming with meningococci.

The second case is of a small child, aged seven months, who, on the second day, presented signs of meningitis, but on whom two operators failed to perform lumbar puncture successfully. *Cisterna magna* puncture was then performed and the fluid obtained showed Gram-negative extracellular and intracellular diplococci. Lumbar puncture was not successful on repeated subsequent attempts. At the time of writing this infant seems to have totally recovered, there being no signs of residual blindness or deafness, hydrocephalus has not developed and the cerebro-spinal fluid is normal in all respects.

Puncture of the *cisterna magna* was first carried out by Ayer and, beyond calling for care, presents no great difficulties. Certain definite rules for guidance are laid down and must be followed. In cases of suspected meningitis, when it is always advisable to administer a general anæsthetic, the patient should be lying on one side with the head and the vertebral column on a level plane. The skin is prepared up to the level of the external occipital protuberance. The head should be moderately flexed. The index finger of one hand is placed upon the spine of the second cervical vertebra, a landmark which is easily recognized, as it is the first spine palpable. Immediately above this finger the needle is introduced in the mid-line and the line of the passage of the needle is a straight line joining the point of entry, the external auditory meatus and the glabella. The needle must be kept in the plane of the vertebral column.

At a depth of four to five centimetres, in an adult, the atlanto-occipital membrane is reached, giving a sense of resistance to the operator. As soon as the membrane is pierced the resistance will yield. At this stage the stylet should be withdrawn and cerebro-spinal fluid will drip through the needle. The margin between the *dura mater* and the medulla at this point in an adult is 2·5 to 3·0 centimetres, which allows ample margin for safety if this technique be followed. The needle should be guarded at six centimetres from its point, as it is not safe to introduce the needle beyond this distance.

The findings on examination of the normal cerebro-spinal fluid may be set out as follows:

Pressure: 100 to 200 millimetres cerebro-spinal fluid.
Appearance: Clear and colourless.
Cells: Two to five lymphocytes per cubic millimetre.
Protein: 0·02% to 0·04%, 20 to 40 milligrammes per 100 cubic centimetres.
Glucose: 0·05% to 0·06%, 50 to 60 milligrammes per 100 cubic centimetres.
Chlorides: 0·72% to 0·75%, 720 to 750 milligrammes per 100 cubic centimetres.
Lange gold curve: 0000110000.

In all cases a careful routine examination of the patient should be made, as there are a number of conditions which can simulate meningitis.

### *Pneumonia.*

Pneumococcal consolidation of the lung, especially in a child, may present signs and symptoms suggestive of meningitis, whereas the condition is one of meningism. Diagnosis may present great difficulties, especially when it is remembered that a child may go through the course of pulmonary consolidation without presenting any stethoscopic signs until after the crisis has occurred. The frequency with which the right upper lobe proves to have been the infected area when this difficulty in diagnosis has arisen, has often been remarked upon. In the presence of dulness to percussion over the apex of the right upper lobe (if chronic tuberculosis can be excluded in the adult) and especially if the right pupil be dilated, pneumonia may be suspected. In meningism (as noted earlier) the cerebro-spinal fluid presents no abnormality, save a variable increase in pressure.

### *Acute Otitis Media.*

An acute suppurative *otitis media*, with or without mastoid involvement, may present a picture closely resembling meningitis. This is particularly so in children in whom pyrexia, convulsions, headache, vomiting,

delirium and neck rigidity are common occurrences at the onset of acute middle ear infection. In combination with a rapid pulse these signs and symptoms will readily lead to a diagnosis of meningitis. It must be remembered that meningitis and suppurative *otitis media* may coexist and lumbar puncture may have to be resorted to in order to confirm the presence or absence of coexisting meningitis. Again, suppurative *otitis media* and brain abscess may occur together and a pulse rate of 50 or less per minute will favour a diagnosis of the latter complication rather than of a meningitis.

*Sinus Thrombosis.*

The clinical aspect of secondary lateral sinus thrombosis may approximate very closely to the picture of meningitis. Headache, drowsiness, deepening into coma, vomiting, delirium and convulsions, neck rigidity, strabismus, inequality of pupils and cardiac arrhythmia may render diagnosis difficult. If, however, the condition occurs after mastoidectomy and the clot extends into the jugular vein, where it may be felt in certain cases, and the patient complains of pain and stiffness in the side of the neck, the diagnosis is not so difficult. The onset of rigors will assist in the diagnosis of sinus thrombosis, but in certain cases lumbar puncture may prove to be necessary. The cerebro-spinal fluid in secondary lateral sinus thrombosis may be under increased pressure, but show no other abnormalities. It is said that if the longitudinal sinus be thrombosed, the cerebro-spinal fluid shows blood contamination. Cavernous sinus thrombosis seldom calls for a differential diagnosis, though meningitis may be present in rare cases.

*Pyelitis.*

Meningism so frequently accompanies pyelitis, especially in infants, that in the routine examination of the patient suspected of having an acute intracranial infection a microscopical examination of the urine is recommended.

*Gastro-Enteritis.*

In infants gastro-enteritis of either infective or dietetic origin may give rise to meningism and lumbar puncture be called for to determine the diagnosis.

## THE ACUTE MENINGITIDES.

### Cerebro-Spinal Fever (Cerebro-Spinal Meningitis, Meningococcal Meningitis).

During an epidemic of cerebro-spinal fever any contact developing pyrexia with a coryzal onset, with headache, is liable to be diagnosed as a suspected sufferer from cerebro-spinal meningitis, for it must be remembered that the first stage of this infection may appear to be nothing more than a local infection of the upper respiratory tract. The second stage suggests one of toxæmia. The patient is dull, apathetic, resents disturbance, gives the typical monosyllabic replies to questions, lies in a position of general muscular rest and complains of generalized soreness. The pulse is rapid and the temperature raised. The one striking feature at this stage is the mental apathy. In about 20% of cases the petechial rash, which gives to the disease the name spotted fever, is present during this stage. The rash varies from minute capillary hæmorrhages to larger hæmorrhagic spots or to purpuric areas in the fulminating cases. In some instances the spots resemble the roseola of typhoid fever, but they occur earlier, are dusky red, do not fade under pressure and are gone in three to four days, leaving a copper coloured stain. If the spleen enlarges, it does so early, whereas in typhoid fever the disease is usually well advanced before the spleen becomes palpable. Even at this stage, when the examination of the cerebro-spinal fluid presents no chemical or cytological abnormalities, an occasional extracellular Gram-negative diplococcus (diplococcus of Weichselbaum) may be seen. A blood count shows a leucocytosis up to 60,000, of which up to 90% may be polymorphonuclear leucocytes. The third stage is ushered in with some or all of the signs which have been described as indicative of meningitis. There are no distinctive clinical features.

Various types of this infection have been noted. A fulminating type has been frequently noted in the epidemics, and has been characterized by the urgency of the symptoms, the rate of progress and the tendency to hæmorrhages. In sporadic cases, however, it is seldom that the disease is suspected until the third stage is ushered in and the diagnosis confirmed by finding the meningococci in the cerebro-spinal fluid.

In cerebro-spinal meningitis the pressure of the fluid cannot be taken as a guide to prognosis. Mild cases may present fluid under high pressure containing numerous meningococci, whilst a lower pressure may be found and the fluid may contain few organisms in a patient with a fulminating attack.

In the early stages the cerebro-spinal fluid is faintly turbid, but the turbidity may increase as the disease advances. The protein content is increased, whilst the sugar is diminished, in some cases almost to the point of absence. The chlorides are unaltered. The count, which may reach as high as 2,000 per cubic millimetre, shows as a rule a predominance of polymorphonuclear cells throughout the course of the disease. It must be remembered, however, that in the premeningitic stage there may be a lymphocytosis, but that during the acute meningitic stage the polymorphonuclear cells predominate. When the infection has become chronic, the cerebro-spinal fluid may become clear and the lymphocytes reappear. A smear stained by Gram's method will show, as a rule, the causative organism (the diplococcus of Weichselbaum), a biscuit or kidney shaped Gram-negative diplococcus, some of which, even in the earliest stages, are bound to be intracellular.

### Posterior Basic Meningitis.

When posterior basic meningitis was first described by Gee and Barlow it was thought to be a specific disease. Later the characters of the causative microorganism were thought to differ from those of the meningococcus and the organism was given the name of Still's diplococcus. Recently it has become the practice to regard these organisms as identical and to regard posterior basic meningitis as a sporadic form of cerebro-spinal meningitis. Posterior basic meningitis occurs as a rule in infants from six months to two and a half years of age. The onset is usually sudden. The typical history is that the mother notices a twitching of face or limbs and seeks medical advice on account of possible convulsions. The child is treated for a gastro-enterological or other toxic cause, but in twenty-four hours the temperature rises to 39·4° or 40·5° C. (103° or 105° F.) and the child for the first time resents being handled and neck rigidity and Kernig's sign are present. The cerebro-spinal fluid is under increased pressure at this early stage and may be clear or faintly turbid. The cell count may be considerably raised, although it is not uncommon to find a count as low as ten cells per cubic millimetre. A stained smear shows the presence of Gram-negative extracellular and intracellular diplococci. The protein is unaltered or slightly increased and the sugar diminished. Dry puncture even at this stage is not uncommon, and it is in these cases that diagnostic *cisterna magna* puncture should not be delayed.

One of the remarkable features of this disease is the occurrence of the hydrocephalus, which may commence as early as the third day of illness. This hydrocephalus increases despite daily draining of the cerebro-spinal fluid by either the lumbar or *cisterna magna* route. The elastic character of the infant's skull is to a certain extent responsible for allowing the alteration in the size of the skull to occur, but when one realizes that as early as twenty-four hours after onset a dry lumbar puncture may be encountered, due, possibly, to the closure of the foramen of Magendie, the obstruction of the flow of the cerebro-spinal fluid from the cerebral ventricles to the subarachnoid space by adhesions is not difficult to accomplish. This view of the disease explains why the cerebro-spinal fluid may not be under great pressure, whilst the hydrocephalus is rapidly increasing.

### Tuberculous Meningitis.

The early diagnosis of tuberculous meningitis presents the greatest difficulties, as its onset is gradual and its course, for a time at least, insidious. The earliest symptoms are of vague ill health, slight apathy with lassitude,

restlessness at night, with mild pyrexia and some vomiting. All these gradually become more definite, the apathy deepening to stupor from which it is difficult to rouse the patient, and finally to coma and death. No patient with proven tuberculous meningitis has recovered and the course is from a few days to three or four weeks after onset of meningeal signs. Even in the cases in which the onset is said to have been sudden, a carefully taken history will reveal that for a few days or even weeks the patient (usually a child) has not been in normal health or spirits. As the disease progresses, it shows the characteristic features of all other forms of meningitis, except that owing to the widespread deposition of tubercles there seems to be more likelihood of convulsions which may be hemiplegic, but they may become bilateral, following the march of cerebral involvement. All forms of ocular phenomena may occur towards the end of the first week, but papillœdema, when it occurs, is more usual towards the later stages.

In tuberculous meningitis the degree of head retraction is not so evident as in cerebro-spinal meningitis or posterior basic meningitis, but the abdomen is always markedly retracted and the child gives the appearance of one who has been ill for a longer period than the history suggests. The writer has not any statistics at hand as to the relative proportion of cases of bovine and human tuberculous infections in meningitis, but has been struck by his experience that in children there is so frequently a history of having been fed upon unscalded milk.

From the time the diagnosis is suspected the cerebro-spinal fluid in tuberculous meningitis is usually under moderately increased pressure, but in the later stage, when the confluence of tubercles gives the appearance of exudation on the brain surface, this initial increase of pressure may diminish. The fluid is usually quite clear, though the cell count may rise as high as 500 or even 1,000 cells per cubic millimetre, with an average of 100 to 200 per cubic millimetre. After standing for a short time, there appears a web-like clot of fibrin which, to the trained eye, is almost pathognomonic of the disease. In the early days of the disease many of the cells may be finely granular polymorphonuclear cells, but ere long a definite lymphocytosis is present, rarely less than 70 per cubic millimetre. The estimation of the chloride content proves most useful in diagnosis. The chloride content is always reduced and progressively decreases, and most authorities adopt the attitude that a reading of 650 or less is suggestive of tuberculous meningitis; a reading of 600 or less is diagnostic.

### Pneumococcal Meningitis.

Primary pneumococcal meningitis is rare and as such is only diagnosed by the finding of the pneumococcus in the cerebro-spinal fluid. The condition usually accompanies or follows upon consolidation of the lung, but the primary focus may be in the upper respiratory tract, involving the nasal sinuses or the middle ear. The disease is almost invariably fatal and again the diagnosis depends upon the discovery of the pneumococcus in the cerebro-spinal fluid. The diagnosis of the onset of pneumococcal meningitis in the course of pneumonia presents difficulties according to the stage of the lung consolidation at which the suspicion arises. If occurring in the early stage when meningism is a possible complication, only lumbar puncture and examination of the cerebro-spinal fluid will settle the doubt. During the stage of advance acute headache with even slight rigidity should raise suspicion of intracranial infection, but if it occurs during the stage of decline or convalescence, the method of diagnosis is similar to that of any other type of meningitis. The cerebro-spinal fluid is under high pressure and is milky in appearance, and in some cases in the later stages may present a greenish colour and become thick. The pneumococcus is usually present in numbers, the count largely increased and the cells chiefly polymorphonuclear and finely granular.

### Streptococcal and Staphylococcal Meningitis.

Streptococcal or staphylococcal meningitis is seldom a primary condition, but usually follows as a complication of some infective process in or around the skull, such as nasal sinusitis, middle ear infection or mastoiditis. The onset of meningitis during the course of these infections leaves little room for doubt concerning the nature of the infection. The cerebro-spinal fluid is turbid and similar in characteristics to that of pneumococcal meningitis, except that the streptococcus or staphylococcus is found. Both the hæmolytic and non-hæmolytic types of the streptococcus have been isolated.

One point of interest is that when the meningitis is due to the spread of infection from a local source the headache of onset may remain localized for some time before becoming general.

### Influenzal Meningitis.

In recent years there have been a comparatively small number of cases presenting the features of an acute meningitis with profound toxæmia. In them the march of events has been rapid and the disease fatal. The cerebro-spinal fluid has given the appearance of very thin pus and a striking feature has been the enormous number of *Bacillus influenzæ* seen in stained smears. The presence of indol in the fluid is said to occur only in influenzal meningitis.

### Typhoid Meningitis.

The mere finding of typhoid bacilli in the cerebro-spinal fluid in the course of typhoid fever does not necessarily prove the presence of typhoid meningitis. It may be necessary to withhold the diagnosis until subsequent examinations of the fluid have been made. An increase in protein and an increase in the cell count may then give reasonable grounds for the diagnosis. In one recorded case the cerebro-spinal fluid on the first examination was normal; twenty-four hours later the protein was increased and the cell count was six per cubic millimetre. On the following day the cell count had risen to fifteen per cubic millimetre.

### Syphilitic Meningitis.

Involvement of the meninges occurs with frequency in neurosyphilis in all forms, is usually of insidious onset, and therefore does not come under the scope of acute intracranial infections. However, cases have been reported in adults in which the meningeal involvement was ushered in in a manner simulating the onset of tuberculous meningitis. As a rule this appears coincident with the syphilitic roseola and the diagnosis depends on the Wassermann reaction of the cerebro-spinal fluid. (Infantile syphilitic meningitis commences usually in the early months of life with signs of gradual deterioration. The child takes less and less cognizance of its surroundings, and muscular power lessens until the child presents the characteristics of cerebral diplegia.)

In childhood, in occasional cases the onset appears to be sudden and the case presents the symptom complex of polioencephalitis. The monoplegic or diplegic character of the paralysis suggests a warning note in diagnosing polioencephalitis and a careful history will nearly always unfold a story of ill health over a fairly long period. The examination of the cerebro-spinal fluid finalizes the diagnosis. The Wassermann reaction is positive, the pressure considerably increased, the cells are raised in number to from 50 to 500 per cubic millimetre, 60% to 80% being lymphocytes. The protein is increased, the chloride content normal, and the fluid sterile on culture.

### Other Forms of Meningitis.

Two rare forms of meningitis remain to be mentioned. Poynton and Payne have given evidence that meningitis in the course of rheumatic infection may be caused by the *Diplococcus rheumaticæ*. The term serous meningitis has been displaced by meningism.

## Other Acute Intracranial Infections.

### Acute Poliomyelitis.

There are numerous cases of acute poliomyelitis in the diagnosis of which meningitis of any type need not be considered, but there are certain cases in which the myeloencephalitic onset renders a diagnosis from meningitis urgently necessary. For the practical purpose of this

article it may be briefly said that lumbar or, if necessary, *cisterna magna* puncture followed by an immediate and thorough examination of the fluid will give the diagnosis.

The reception of a turbid fluid will eliminate the diagnosis of acute poliomyelitis. If the fluid be clear, the findings of the diplococcus of Weichselbaum will indicate cerebro-spinal meningitis. The real difficulty in the absence of this diplococcus will then be between acute polioencephalitis and tuberculous meningitis. Apart from clinical examination and a careful history, possibly retaken at this stage, the estimation of the chloride content of the cerebro-spinal fluid will prove of real value. Any reduction will favour the diagnosis of tuberculous meningitis. For a detailed account of the diagnosis of acute anterior poliomyelitis or polioencephalitis the excellent article number XXXVIII of this series, by Dr. Jean Macnamara, should be consulted.

### Encephalitis Lethargica.

The literature on *encephalitis lethargica* is so voluminous and the symptoms so varied in their manifestations that it would be impossible in the scope of this article to give anything of a detailed description of its various forms and the diagnosis of them. More value would be derived possibly in attempting to distinguish the condition from the infections already described. Apart from the cases occurring during the well known epidemics in which the onset was more sudden, the onset of the cases occurring sporadically at the present time is more insidious. Malaise, fatigue, headache and blurring of vision are the most common symptoms. The lethargy, which does not occur in every case, may amount to somnolence by day and night, or by day alone followed by insomnia at night. In other cases delirium may be a marked feature, but is more a hallucinatory type, with a disorientation which may resemble that of alcoholism. The headache is not of the acute type of meningitis or of any intracranial increase of pressure. The blurring of vision may advance to a state of diplopia and most of the abnormal physical signs are ocular, such as ptosis, unilateral or bilateral, inequality of pupils, paresis of ocular muscles. Most commonly the tendon reflexes are diminished and this diminution may be unilateral. The plantar responses may be flexor or present a unilateral or bilateral extensor response. Kernig's sign and neck rigidity do not occur and signs of meningeal involvement are conspicuously absent.

In the writer's experience of post-epidemic *encephalitis lethargica* the cerebro-spinal fluid has been normal in all respects, but minor alterations have been reported by various observers.

Tuberculous meningitis in the early stages has been a matter for differential diagnosis, but the fact that the chlorides are unaltered in *encephalitis lethargica* has settled the diagnosis.

Two factors are present to assist in the differential diagnosis between acute polioencephalitis and *encephalitis lethargica*. The latter has a gradual and insidious onset, extending possibly over weeks, whilst the former has at the most a history of a day or two before the establishment of symptoms. Secondly, whilst the cerebro-spinal fluid in both cases is similar in most characteristics, the fluid in acute polioencephalitis will show an increase in polymorphonuclear cells for the first week at least. The fluid from a case of *encephalitis lethargica* will show no increase as a rule, whilst, if any increase at all occurs, it will be in the lymphocytes. Greenhill has met with polymorphonuclear cells in the cerebro-spinal fluid in *encephalitis lethargica*, but this is rare and in circumstances such as these it would be wiser, from the point of view of treatment, to regard the condition as polioencephalitis. A Wassermann test should be done in all cases diagnosed as *encephalitis lethargica*, especially if seen first in an afebrile state.

### Intracranial Abscess.

Infections of the ear are the most common cause of abscess of the brain, which for practical purposes may be said to be always a secondary condition. Various authorities estimate that 30% to 50% of abscesses of the brain arise as a result of otitis. The infection may spread by direct extension, but metastatic abscesses may follow upon infections elsewhere in the body. Pulmonary septic conditions, particularly bronchiectasis, are the main cause of metastatic abscesses. A not infallible but useful rule is that abscesses arising from direct spread are single, whilst metastatic ones are multiple.

Abscess of the brain may be acute or chronic, and it is only the former with which this article deals. The signs and symptoms of acute intracranial abscess may be divided into four classes: (*a*) General, indicating toxæmia, (*b*) those suggesting increased intracranial pressure, (*c*) localizing signs, (*d*) terminal signs.

#### *General Symptoms of Abscess.*

The temperature as a rule is not high, but malaise is well marked, with anorexia, furred tongue and constipation. The mental symptoms are very varied in their character and may be due either to toxæmia or local suppuration. Delirium is not common. Lack of concentration, insomnia, irritability, changes of temperament or morality, and disorders of memory are amongst the varied mental changes noted.

#### *Symptoms of Abscess Suggesting Increased Intracranial Pressure.*

Extradural and subdural collections of pus may give very little in the way of signs suggesting increased pressure or of indications of localization, but, on the other hand, at times the pressure signs and symptoms may be very definite. In the true encephalitic abscess, however, there may be a latent period of weeks before the intracranial symptoms predominate, the symptoms being masked by those of the primary condition, until a sudden exacerbation terminates this stage. Headache is the most common sign suggesting increased pressure. Vomiting may be persistent and in the extradural and subdural cases papillœdema may be an early sign, but in the encephalitic type papillœdema is as a rule a late sign. Bradycardia is an almost constant sign and cardiac irregularities are common.

#### *Localizing Signs of Abscess.*

Local diagnosis may sometimes be rendered extremely difficult because of the mental fatigue of the patient, examination proving too tiresome to the patient to produce reliable results, or because of the somnolent state of the patient or the absence of localizing signs. The more recent and acute the abscess, the fewer are the localizing signs.

When the abscess has spread by extension from a local cause, the area of abscess is almost always in its vicinity. Thus those of otitic origin invade the temporal lobe or the cerebellum on the same side, those arising from ethmoiditis or sinusitis occupy the frontal lobe. Metastatic abscesses may occur anywhere in the brain substance, but more commonly in the parietal and occipital lobes. Without any attempt to give a complete list of localizing signs, the following are useful, but nothing more.

1. The presence of an extensor plantar response will give evidence of pyramidal tract involvement but no localization.
2. Monoplegia or hemiplegia may follow involvement of the pyramidal tract in the internal capsule or *corona radiata* or the motor areas and surrounding tissues.
3. Convulsions suggest cortical irritation, whilst it is said that abscesses in the vicinity of or involving the internal capsule give rise to somnolence.
4. Aphasia alone is not an indication of which hemisphere is involved.
5. Unilateral hypotonia, nystagmus or the adoption of abnormal attitudes suggests a cerebellar lesion.
6. Astereognosis, provided aphasia does not interfere with this test, indicates parietal lobe.
7. Olfactory hallucinations with convulsions indicate the temporo-sphenoidal lobe.

For operative purposes the distinction between temporal lobe abscess and cerebellar abscess is important. Right-sided temporal lobe abscess may give no special signs, except possibly hemianopia and contralateral hemiparesis and hemihyperæsthesia, while left-sided lesions present, as a rule, symptoms of aphasia. Cerebellar abscess may give

rise to ataxia, nystagmus, pain in the neck and occipital headache, possibly negative results to caloric tests and signs of labyrinthine involvement. There are times, however, when needling of the brain substance will find the abscess.

The presence of tonic innervation and forced grasping and groping may indicate a contralateral frontal lobe involvement. A short description of these terms and signs, the interpretation of which we owe to Adie and Critchley, may be useful. Tonic innervation means that when a group of muscles has been innervated voluntarily, the innervation persists. Thus a patient who closes his hand is unable to open it again and the more he attempts it, the less able he is to open it. When his attention is taken off his hand he can reopen it.

Forced groping and grasping are easily exemplified. A penholder drawn across the palmar surfaces of the fingers, especially the index finger, and thumb is immediately grasped by the fingers closing on it, and if an attempt be made to pull the penholder away, the grip is increased and some minutes elapse before relaxation occurs. If the palm of the hand at base of fingers be stimulated, the fingers close to grasp the object. If the object be missed, the fingers open, but if grasped, the grip increases, if the attempt be made to pull the object away.

Failure to relax the grasp is said to occur in true myotonia and some cerebellar conditions.

*Terminal Signs of Abscess.*

The abscess may terminate by rupture into a ventricle or by the involvement of the meninges. When rupture into a ventricle takes place, convulsions, delirium, hyperpyrexia, rapid pulse and respiratory distress, coma and death occur. Involvement of the meninges produces the usual signs of meningitis.

The pressure of the cerebro-spinal fluid in cerebral abscess may be normal or increased. The fluid is clear, showing a slight increase in the number of cells of a mixed variety. The protein is increased, but the chlorides are normal, except when the abscess is leaking, when the chloride and sugar content may both diminish. When meningitis occurs, the cerebro-spinal fluid shows the characteristics of suppurative meningitis.

### Encephalitis Complicating Acute Specific Fevers.

Although interest has recently been revived in these cases as a result of encephalitis following upon vaccination, they appear to be similar to the condition described as acute hæmorrhagic encephalitis of Strumpell. The condition is characterized by the presence of hæmorrhagic foci scattered throughout the brain substance.

While the disease usually affects young children, adults are not immune. The infection may be fulminating and fatal. In the milder cases there may be a day or two of irritability preceding the onset. Headache is common, pulse is rapid and respiration often irregular. Convulsions may usher in the onset. The conditions at this stage may suddenly change, coma rapidly ensues with hyperpyrexia and death. In the patients who recover, paralyses are common, taking the form of monoplegia, hemiplegia or ocular or other cranial nerve palsies which are usually permanent.

Post-vaccinal encephalitis is still occupying the attention of neurologists, and those in favour of the theory that the virus of vaccinia is the causative organism draw attention to the facts that post-vaccinal encephalitis displays a constant symptomatology, that the incubation period is constant and the histology of the encephalitic changes unique.

The onset of nervous symptoms occurs between the ninth and nineteenth day, with headache, vomiting and fever and commonly flaccid paralyses, and almost always extensor plantar responses. Meningeal symptoms are common and trismus not uncommonly occurs. The cerebro-spinal fluid usually shows no abnormal characteristics, but occasionally there is an increase in the lymphocytes and the protein content. It has been said that an increase in the sugar content is an important diagnostic sign in encephalitis in children.

So far as the encephalitis complicating the acute specific fevers is concerned, it is unknown whether the primary infective organism or some secondary infection with nervous system predilection is the cause. The present position of our knowledge regarding the acute infective encephalopathies may be summed up briefly as follows.

The condition is due to one or many toxins producing acute degeneration of ganglion cells with generalized hyperæmia and œdema of the brain substance and distension of the perivascular tissues, but without any cellular infiltration, such as the "cuffing" seen in polioencephalitis or *encephalitis lethargica*. Similar changes may occur in the liver and kidneys.

The condition may manifest itself as: (i) Meningism (serous meningitis), (ii) acute hæmorrhagic encephalitis, (iii) acute toxic encephalitis with degeneration of nerve cells, for example, acute toxic measles, (iv) acute meningomyeloencephalitis.

## Conditions Simulating Acute Intracranial Infections.

### Pachymeningitis Hæmorrhagica Interna.

When *pachymeningitis hæmorrhagica interna* occurs in the senile or in the course of some of the hæmorrhagic diseases, such as scurvy, purpura hæmophilia, leuchæmia *et cetera*, it seldom simulates an acute intracranial infection. Nor does it do so in those cases in which the symptoms appear insidiously some time after trauma of the head, but in cases in which, after a trivial or unknown (to the medical attendant) trauma, the onset is acute or even apoplectic, the diagnosis from meningitis may prove difficult, as head retraction may be very marked. To render the diagnosis more difficult, these patients usually present some pyrexia. The cerebro-spinal fluid may be blood stained or merely show xanthochromia. When the cerebro-spinal fluid is blood stained, centrifugalization will distinguish between hæmorrhage into the fluid and contamination during puncture. If the supernatant fluid shows a yellow colour, the blood is not due to contamination alone.

### Spontaneous Intracranial Hæmorrhage.

There are rare cases which one meets, in which meningeal symptoms arise as a result of extravasation of blood into the subarachnoid space. This usually occurs in young adults. For no apparent reason, or maybe following trivial trauma, the patient develops acute headache with vomiting and soon becomes unconscious, and rigidity of the neck, inequality of pupils, irregularity of pulse, possible bradycardia and Kernig's sign soon develop. Lumbar puncture reveals heavily blood stained cerebro-spinal fluid which, apart from this spontaneous hæmorrhage, could only occur in a hæmorrhagic diathesis.

The age of the patient rules out arteriosclerosis and the like, and quite frequently the diagnosis is made consequent upon the rapid clearing of the symptoms following repeated lumbar punctures.

### Malignant Endocarditis.

The meningeal form of malignant endocarditis reported by Osler has on rare occasions been mentioned in the literature. These cases can approach very closely in symptomatology to meningitis, but as a primary condition they must be extremely rare and all seem to arise in the course of some other infection. Signs of cardiac involvement may be absent altogether or only appear in the terminal stages. The condition is a fulminating one, death ensuing rapidly. The cerebro-spinal fluid apparently varies with the cerebral condition—usually hæmorrhagic—which is found at autopsy. The cells may be increased in number by some hundreds per cubic millimetre, lymphocytes usually predominating, but the fluid is sterile.

## Conclusion.

In conclusion, one might stress once more that this article is an attempt to point out the following facts.

No matter how obvious a diagnosis of acute intracranial infection may appear, the diagnosis should not be made until a complete clinical examination has been carried out. If, when seen the first time, a patient be in a state

of coma, the presence of acute intracranial infection may be suspected, but examination of the fundi may reveal albuminuric retinitis and the heart may prove to be enlarged and signs of arteriosclerosis found, all suggesting the possibility of uræmia, or diabetic retinitis may be found, pointing to diabetes as the cause of the coma; a catheter specimen of urine may give confirmation of either. There will always remain the case, however, in which the diagnosis can be made only after examination of the cerebro-spinal fluid.

J. GORDON HISLOP, M.B., B.S. (Melbourne), M.R.C.P. (London),
*Honorary Physician, Perth Hospital; Honorary Physician, Children's Hospital, Perth.*

# British Medical Association News.

## SCIENTIFIC.

A MEETING OF THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, Adelaide Street, Brisbane, on May 10, 1931, DR. F. HOPE MICHÔD, the President, in the chair.

### Surgical Treatment of Prostatic Obstruction.

DR. A. S. ROE read a paper entitled: "Surgical Treatment of Prostatic Obstruction" (see page 775).

DR. J. J. POWER thanked Dr. Roe for his paper and for bringing up the question of prostatic obstruction. There were many ideas on the operative procedure in a case of prostatic obstruction. Two years previously Dr. Power had made certain remarks in regard to the operation suitable in such cases. Now he was entirely converted to the operation of Dr. Harry Harris, done in one or two stages. In most hands the suprapubic operation was far the easiest, and excellent results were obtained. It must, however, be done after the method of Harris; everything should be electrically lit, every stitch should have a definite object, all bleeding points should be tied, and there should be an indwelling catheter. Dr. Power was converted to this operation, whether in one stage or two. It must be mastered by using a large incision in the bladder, until the technique of the bladder neck sutures had been conquered, and Dr. Power hoped himself to become expert in Harris's methods. Many Americans had become converted to Harris's operation since his demonstrations to them last year.

The age was not important in the two-stage operation, provided the renal tests gave a good result. Dr. Power considered that Harris's method would become the standard one. Dr. Harris now did all his operations under spinal anæsthesia and this method had been followed in Brisbane by Dr. Power for the past two and a half years. If the operation were being done in two stages, the first stage was short and field block was the ideal method, but the anæsthetic was an important point in the second stage of the operation.

In the case of a median bar, the operation with the McCarthy punch, which was electrically lit, was most satisfactory. The cut surface was treated by diathermy afterwards through the cystoscope, and the method seemed ideal. After this was done, a catheter was left in. With regard to tying the vas, this should be done before the catheter was put into the urethra, no anæsthetic being necessary.

As to the position of the patient, Dr. Power considered the exaggerated Trendelenburg position the best, especially when only block anæsthesia was used, as there was a tendency for the patient to strain a little, and the exaggerated position got the intestines out of the way.

Dr. Power had had only one case in which he used radium for malignant disease. Dr. Harris and Dr. Gordon Craig considered deep X ray therapy more promising than radium. Dr. Power considered that in a case of indwelling catheter, that if the temperature rose twice, the catheter should be taken out and a suprapubic operation done. Patients whose prostates were inoperable through any cause, would be better with a permanent drain and a suprapubic apparatus.

DR. M. GRAHAM SUTTON said he had listened with great pleasure to Dr. Roe's paper, which was the result of his experience.

Dr. Sutton had not had so much experience in urology in the male as in the female, because he had until recently held an appointment at a women's hospital, so had not any very firm convictions as to prostatectomy. He felt with Dr. Power that spinal anæsthesia with "Spinocain," and failing that, gas and oxygen, was the one to be preferred.

With regard to tests, he used the blood urea and the indigo-carmine tests. The "phthalein" test was not much used in Brisbane, but Dr. Sutton used it with a colorimeter and was struck by its accuracy. Young stated that patients with prostatic obstruction might have a normal blood urea concentration and a poor "phthalein" excretion, so he used both and considered the latter important.

The question of perineal and suprapubic route had been a very vexed one since 1901, when Freyer popularized the latter. Young was the world's exponent of the perineal operation. At the Brisbane Hospital Dr. Sutton had charge of some of the gonorrhœal patients with prostatic abscess *et cetera*. He had had occasion to open two of these through the perineal route and was very struck with the way one could get on to the posterior surface of the prostate, even though not using a Young's tractor. The exposure by Young's technique must be very good.

In America they claimed that the perineal operation had a lower mortality than the suprapubic, and Young had worked out a technique of closure in line with Harry Harris's operation. The thought had struck him that this was the more direct method of approach and did away with the necessity of opening into the bladder suprapubically, only to close it again. He would like to ask what was the mortality from simple primary suprapubic cystotomy. He had treated with radium one patient with malignant disease of the prostate. The patient had been relieved, but had lived only eight months. With regard to what Dr. Roe had said about decompression, he felt sure that Dr. Roe, by letting a little urine out at intervals, was doing the same thing as Young and Shaw did with their apparatus. The great point about decompression was to let the urine out slowly and not all at once, so as not to lower the back pressure in the kidneys suddenly and upset the renal circulation. Dr. Sutton considered that in doubtful cases in the diagnosis of early prostatic hypertrophy from median bar, the McCarthy panendoscope greatly facilitated the diagnosis by allowing a view of the prostatic urethra and the bladder neck from below, and he favoured the McCarthy punch, which gave a good view. One could flush out the field and fulgurate afterwards.

DR. N. M. GUTTERIDGE appreciated Dr. Roe's paper and the comments on it. Two points he wished to refer to. Dr. Roe had mentioned the salivary urea test. It was doubtful whether it was sufficiently accurate, except for showing a pronounced deviation from the normal. It could be done in a very short time, but, though simple, factors in it left loopholes for inaccuracy.

With regard to the estimation of blood urea, a technical point was the necessity for the clinician to mix the blood thoroughly with the anticoagulant when taking the specimen for examination at a pathological laboratory. The tube should be shaken for a full minute.

What was the proportion of malignant prostates in the series, and what did the urological literature indicate as being the incidence of malignant disease in routine histological examination of prostates? He had examined several prostates after removal in which, in different areas of the same gland, the histological pictures of typical "hypertrophy" and definite malignant change had coexisted. In one such case in which the prostate was as large as a tennis ball, a small nodule had been excised through the suprapubic wound and histological section showed a typical "hypertrophy." When the whole prostate had been removed, however, it was found to be almost wholly malignant, a strange feature being that it was riddled with thousands of calculi. The growth had extended towards the rectum and the patient died soon after the operation.

Dr. Roe in reply stated that he was unable to supply statistics, as he had not had time to go over them.

With regard to malignant changes, till lately he had only had sectioned those prostates which would not enucleate easily. During the last six months all prostates had been sectioned and the number found with malignant disease was surprising.

In reply to Dr. Sutton, Dr. Roe said he, as far as he could remember, had not had immediate deaths from suprapubic cystotomy. He was a very conservative surgeon. In "bad risk" patients he had made a practice of draining by a catheter before doing a suprapubic cystotomy under local anæsthesia.

He argued with Dr. Power that Dr. Harris's operation was wonderful, and wished that he had the pluck to sew the bladder up, but he felt much happier with a suprapubic wound, as he considered that there was much less risk of blocking. He admitted that Dr. Harris's operation was the ideal thing, but the main argument about a prostatectomy was the renal function. Nobody yet had worked out the expectation of life following each method. This had still to be properly investigated.

He considered that if a patient's bladder were drained suprapubically, he went on improving and the expectation of life was increased.

It was not the mechanical part of the operation that Dr. Roe thought most important. The question was what health and comfort the man was going to have after his wound was healed up and he was out of hospital.

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A MEETING OF THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Mater Misericordiæ Hospital, Brisbane, on March 6, 1931. The meeting took the form of a series of demonstrations by the members of the honorary staff.

### Ectopia Vesicæ.

DR. A. S. ROE showed a female patient, aged fourteen years, who had been handed over to him eight years previously with complete *ectopia vesicæ*. Dr. Roe had followed an article in one of the Mayo Clinic papers of 1917, and had transplanted the right ureter into the rectum. The patient had become semi-uræmic, as the Mayo Clinic article stated such patients always did. The wound gave a lot of trouble and three months were then allowed to elapse before the left ureter was transplanted into the rectum. The patient still had a weak abdominal wall. She was fourteen years old and had been going to school since she was eight, and to all intents and purposes was able to take an ordinary part in life.

Dr. Roe said that some years before the patient had been having recurrent attacks of septic tonsillitis which was affecting her renal condition, the urinary control being very much worse during the attacks. The tonsils were removed, but incompletely. The child improved, but for the last few months she had been not so well again, suffering with recurrent headaches and a raised temperature. At these times her control of her urine was not so good. She was to come into hospital shortly for complete removal of her tonsils.

The patient could hold her urine for four hours during the day and she had to get up three times during the night. There was greater frequency during the attacks of feverishness.

Dr. Roe stated that at the operation the base of the bladder had not been removed, and it was proposed to do this by fulguration. He also intended to try to get a pyelogram. The renal function was moderately good, judging by the way the child got about. The mental improvement after the operation had been marked.

### Gastro-Enterostomy and Colopexy.

DR. E. D. AHERN showed a male, aged forty-three years, who had suffered for five years from distressing dyspepsia. He had been admitted to hospital and an X ray examination was performed. This revealed a definite deformity of the angle and a diagnosis of a probable gastric ulcer and a possible carcinoma was made. A gastric analysis resulted in a very high acid curve, suggesting a duodenal ulcer.

At operation a large gastric ulcer was found at the angle, extending 3·75 centimetres (one and a half inches) in all directions; a posterior gastro-enterostomy was performed proximal from the ulcer. From the time of the operation the patient did not suffer any pain. One week after his discharge from hospital he had nausea and vomited, but had no pain. This was repeated at intervals and alkalis were tried without success. Examination revealed nothing definite, though a right-sided ptosis of the bowel was suspected and this was confirmed by X ray findings. The ptosis was treated symptomatically, but finally colopexy was performed. At operation it was found that the ulcer was healed and that the area was free, there being only a little white scarring of the peritoneum. The anastomisis was found to be functioning well. Dr. Ahern said that since colopexy was performed the patient had had no vomiting or distress and was putting on weight. The patient was shown to demonstrate the cause of the failure of a gastro-enterostomy to cure the dyspepsia.

### Posterior Gastro-Enterostomy.

Dr. Ahern also showed a male patient, twenty-three years old, who had well marked tenderness in the epigastrium and over the gall bladder. The condition had been diagnosed as a gall bladder lesion, but at operation a large duodenal ulcer was found. A gastro-enterostomy was performed and the appendix, which was adherent and curling round the caecum, was removed; the caecum was pulled over into position. Five days after operation the patient vomited large quantities of fluid. The stomach was washed out for three or four days, and the patient improved. An X ray examination revealed that there was practically no movement of the stomach and nothing was going through the anastomosis. On the man being turned to the right the meal passed into the pylorus and duodenum, and then reversed back to the stomach. This was probably due to some anomalous activity of the sympathetic nervous system. However, the patient left hospital perfectly well. He would probably suffer from attacks of vomiting and was told that he might require a colopexy. This patient illustrated a condition which so far was cured symptomatically.

### Erythema Multiforme.

DR. J. T. HENRY showed two cases of *erythema multiforme*, which, however, were not typical of the disease. One patient was a woman suffering with pains in the ankle and the other a man with similar pains all over the body.

The woman had been suffering with pain in the right leg for one year; her ankle had then become very swollen and an osteomyelitis had been suspected, but an X ray examination revealed nothing. Her condition was then diagnosed as rheumatic fever and she was treated with salicylates. Her temperature, which was 39·7° C. (103·6° F.), became normal in four days. She had a bulla present on the big toe and the dorsum of the foot.

The man had suffered with pains in the joints and a temperature of 39·8° C. (103·8° F.), which finally came down to normal for fourteen days. He was treated with salicylates. He also had bullæ on both lateral malleoli; these were opened and cleared up. He had complained of abdominal pain.

In neither instance was any septic focus or reason for the illness found. Calcium lactate was used without success.

### Neurological Case for Investigation.

DR. ELLIS MURPHY showed a boy, twelve years old, who was quite well till he was five years old. He was gored by a cow, and from that time he began to lose power in his legs and to get peculiar spasms of the face. Mentally the child was quite bright.

Examination revealed a spasmodic torticollis to the right side. There were choreiform movements of the face

resembling a tic, and there was slight tremor of the right hand and arm. The pupils reacted sluggishly to light and did not react to accommodation. The tongue deviated to the right, and smiling and whistling were practically normal. There was no wasting of the limbs and the reflexes were slightly exaggerated on the right side. The ankle jerks were present and equal, and there was no patellar clonus. The plantar reflexes were indefinite. The blood reacted strongly to the Wassermann test; the cerebro-spinal fluid gave no reaction to the Wassermann test, it contained no increase in cells, sugar was present, also a trace of globulin.

The differential diagnosis included encephalitis, which at that age sometimes left bizarre results. The only evidence, however, of encephalitis was the lack of accommodation; the boy showed no spasticity or Parkinsonism. The tremor was slightly suggestive of encephalitis.

Little's disease also was to be considered; sometimes it did not become evident till the patient was four to five years of age.

A third disease was congenital syphilis, points in the favour of which disease were the bad teeth and the positive Wassermann reaction. There was no definite evidence in the cerebro-spinal fluid and the nerve signs did not fit in with this diagnosis.

The fourth diagnosis was neurosis, and this was upheld by the spasmodic torticollis and the tic, also by the gait, which was not spastic, but rather bizarre.

Dr. Murphy considered that a diagnosis of neurosis in association with a positive Wassermann reaction had to be well considered.

### Hydro-Pneumothorax.

DR. P. B. MACGREGOR showed a male patient, twenty-four years old, whose illness had begun one month previously. At its commencement he felt ill and went to bed for five days; he had the shivers and felt hot and cold, but had no cough or pain. He had had no previous illnesses and had gained weight in the last year.

After this short illness he felt better and went to work. During the day he had pain in the right chest which was worse on taking a deep breath. He went home to bed and was admitted to hospital next day. His only complaint was pain in the right side of the chest. His temperature was 39·4° C. (103° F.). He had no cough or sputum, but stated that he had coughed up blood on two occasions. His pulse rate was 104 per minute; there was a friction rub in the neighbourhood of the right nipple over a circular area about 7·5 centimetres (three inches) in diameter. At the right base posteriorly the resonance and breath sounds were impaired and a flat note was present on percussion. The patient complained of pain under the right costal margin. He had been given the ordinary treatment for pleurisy and had been allowed out of bed after his temperature was normal for five days. His temperature then rose slightly again, but his only complaint was that he was slightly uncomfortable. He had no pain or cough. At this stage the friction rub in the chest had disappeared. The area at the right base posteriorly was becoming duller and the breath sounds fainter. The Widal test gave no reaction. The urine contained albumin and motile bacilli, but no pus or casts. Some days later the area at the base of the right lung was noticed to be bulging a little and was needled, but without success. A blood count was done and revealed diminution in the number of red cells. An X ray photograph was taken.

Dr. Ellis Murphy saw the patient in conjunction with Dr. Macgregor and he mentioned the bulging on the right side of the chest, the hyperresonance of the anterior part of the chest, and the dulness down the right side of the spine and at the base. The man had a spontaneous pneumothorax, which was shown by the skiagram. The dulness down the spine showed that the lung was collapsed on to the spine. The pneumothorax was more pronounced anteriorly than posteriorly.

### Solitary Cyst of the Kidney.

DR. L. MCKILLOP showed a specimen of a solitary cyst of the left kidney, removed from a woman who had complained of discomfort after food for sixteen years. Gastro-intestinal and renal X ray examinations had been made and had revealed a small amount of ptosis of the right colon and signs of a chronic appendicitis. Operation was performed; the appendix was found to contain concretions and was removed. Then the cyst of the kidney was discovered. Renal efficiency tests were performed, another operation was done and the left kidney was removed. The renal test had been prformd by Dr. Power, who said that the left kidney appeared to be perfectly normal. The cyst had not encroached on the pelvis of the kidney.

### Lesion of the Rectum.

Dr. McKillop then related the history of a female patient, who had been admitted on February 14, 1931, complaining of a progressively increasing constipation. She had a certain amount of pain on defæcation and a feeling of pelvic discomfort had been gradually increasing for two or three weeks before admission.

A *per vaginam* examination was made and a large mass was felt through the posterior fornix, which was thought to be an incarcerated fibroid of the uterus. No *per rectum* examination was made.

On February 16, 1931, operation was performed. The abdomen was opened; the uterus, tubes and ovaries were found to be perfectly normal. A condition was present behind the rectum which was akin to a parametritis. It appeared as if the meso-rectum had been opened and plaster of Paris poured in and moulded round the rectum, except in front. The mucous membrane of the rectum was felt to be quite normal; no carcinoma was present. A thorough examination was made of the liver and nothing abnormal was found, and the glands in the meso-rectum were normal. The wound was closed.

The Wassermann test gave no reaction. The only treatment given was glycerine tampons. Ten days later the patient was examined again and the condition was found to have cleared up.

### Infective Arthritis.

DR. G. MACARTNEY showed a male patient, aged thirty-three years. The patient was pdesented because of the interesting series of skiagrams. The man had been sent into hospital as a sufferer from acute osteomyelitis of the lower end of the radius. Swelling was present in that position and he was very ill. Operation was performed, but no free pus was found, only a sloughing condition of the subcutaneous tissues. The bone was drilled and the wound closed.

A few days later the arm and hand were examined by X rays and rarefaction of the heads of the metacarpal bones, the carpal bones, the lower end of the radius and the ulna were found. The condition was probably due to an infective arthritis. The hand was placed in a cock-up splint and diathermy given over a long period, and at the time of demonstration the man had a very useful wrist. Hhe had not complete flexion, but he had very good extension and a good grip. The only remnant left was a little arthritis between the semilunar bone and the radius.

## Correspondence.

### PROFESSIONAL ADVERTISEMENT.

SIR: Though it is a generally accepted axiom that one's family is one's severest critic, there are moments when the exception proves the rule. Accordingly, I ask you to be good enough to allow me to support with becoming moderation my brother's remarks concerning "advertising" and "general meetings."

It is certainly quite time that we put a stop to our Association being controlled by 5% of its members. In any case, what a screaming farce it is to call a "general meeting" in the full knowledge that the majority of members cannot possibly attend. It reminds one of the

annual meeting of the Seamen's Union in London, which can only be attended by those who don't happen to be seamen at the time.

That photo. question makes me shiver with apprehension lest another Bradman should arise who should happen to be a doctor. Imagine for one moment the critical moment at Lords when a photo. is to be taken of the Australian Eleven in company with His Majesty the King. The stage is set and that dramatic hush that precedes a great event has overwhelmed all. "Are you all ready?" say a hundred press photographers, "then smile, please." Suddenly a broken sob is heard from the front row and a bowed figure rushes from the group. "Oh, please, Your Majesty," sobs our medical Bradman, "I cannot have my photo. taken with you; my union won't let me."

Isn't it time our counsellors got rid of their schoolgirlish complex about telling everyone how to behave themselves and got down to something really useful?

Yours more in amusement than anger,

BROUGHTON BARRY.

"Stirling,"
Lindfield Avenue,
Lindfield,
May 25, 1931.

## Books Received.

MATERIA MEDICA, PHARMACY, PHARMACOLOGY AND THERAPEUTICS, by W. Hale-White, K.B.E., M.D., LL.D.; Twentieth Edition, revised by A. H. Douthwaite, M.D., F.R.C.P.; 1931. London: J. and A. Churchill; Sydney: Angus and Robertson. Foolscap 8vo., pp. 720.

AIDS TO MEDICAL DIAGNOSIS, by A. Whiting, M.D.; Fourth Edition; 1931. London: Baillière, Tindall and Cox. Foolscap 8vo., pp. 188. Price: 3s. 6d. net.

AIDS TO MEDICAL TREATMENT, by J. T. Lewis, M.D., B.Sc., M.R.C.P., and T. H. Crozier, M.D., D.P.H., M.R.C.P.; 1931. London: Baillière, Tindall and Cox. Foolscap 8vo., pp. 251. Price: 3s. 6d. net.

THE CONDUCT OF LIFE ASSURANCE EXAMINATIONS, by E. M. Brockbank, M.D., F.R.C.P.; 1931. London: H. K. Lewis. Demy 8vo., pp. 180. Price: 7s. 6d. net.

THE ALCOHOL HABIT AND ITS TREATMENT, by W. E. Masters, M.D., M.R.C.S., D.P.H.; 1931. London: H. K. Lewis. Crown 8vo., pp. 207. Price: 6s. net.

HOW TO KEEP FIT AFTER FORTY, by R. Thornhill, M.B., Ch.B.; 1931. London: Methuen and Company. Crown 8vo., pp. 126, with ten illustrations. Price: 2s. 6d. net.

HEALTH AND SOCIAL EVOLUTION, by Sir George Newman, K.C.B., M.D., D.C.L., LL.D. (Halley Stewart Lecture, 1930); 1931. London: George Allen and Unwin. Crown 8vo., pp. 200. Price: 4s. 6d. net.

## Diary for the Month.

JULY 1.—Victorian Branch, B.M.A.: Branch.
JULY 2.—South Australian Branch, B.M.A.: Council.
JULY 3.—Queensland Branch, B.M.A.: Branch.
JULY 7.—New South Wales Branch, B.M.A.: Organization and Science Committee.
JULY 10.—Queensland Branch, B.M.A.: Council.
JULY 14.—New South Wales Branch, B.M.A.: Ethics Committee.
JULY 21.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
JULY 22.—Victorian Branch, B.M.A.: Council.
JULY 24.—Queensland Branch, B.M.A.: Council.
JULY 28.—New South Wales Branch, B.M.A.: Medical Politics Committee.
JULY 30.—South Australian Branch, B.M.A.: Branch.
JULY 30.—New South Wales Branch, B.M.A.: Branch.

## Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xvii.

NEW SOUTH WALES MASONIC HOSPITAL, SYDNEY: Honorary Vacancies.

REPATRIATION COMMISSION: Resident Medical Officer.

## Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1

| BRANCH. | APPOINTMENTS. |
|---|---|
| NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney. | Australian Natives' Association.<br>Ashfield and District United Friendly Societies' Dispensary.<br>Balmain United Friendly Societies' Dispensary.<br>Friendly Society Lodges at Casino.<br>Leichhardt and Petersham United Friendly Societies' Dispensary.<br>Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney.<br>North Sydney Friendly Societies' Dispensary Limited.<br>People's Prudential Assurance Company, Limited.<br>Phœnix Mutual Provident Society. |
| VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne. | All Institutes or Medical Dispensaries.<br>Australian Prudential Association, Proprietary, Limited.<br>Mutual National Provident Club.<br>National Provident Association.<br>Hospital or other appointments outside Victoria. |
| QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane. | Members desiring to accept appointment in ANY COUNTRY HOSPITAL, are advised to submit a copy of their agreement to the Council before signing, in their own interests.<br>Brisbane Associated Friendly Societies' Medical Institute.<br>Mount Isa Hospital.<br>Mount Isa Mines.<br>Toowoomba Associated Friendly Societies' Medical Institute. |
| SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide. | All Lodge Appointments in South Australia.<br>All Contract Practice Appointments in South Australia. |
| WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth. | All Contract Practice Appointments in Western Australia. |
| NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington. | Friendly Society Lodges, Wellington, New Zealand. |

## Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

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